(FILE 'USPAT' ENTERED AT 14:39:16 ON 15 JUN 1998)
L1 13 S (DIOL OR GLYCEROL)(2N)(DEHYDRASE OR DEHYDRATASE)
L2 3 S DHAT
L3 31 S DHAB?

L2
1. 5,686,276, NOV. 11, 1997, BIOCONVERSION OF A FERMENTABLE CARBON SOURCE TO 1,3-PROPANEDIOL BY A SINGLE MICROORGANISM; LISA ANNE LAFFEND, ET AL., 435/158, 252.31, 252.33 [IMAGE AVAILABLE]

2. 5,086,386, FEB. 4, 1992, METHOD AND APPARATUS FOR BENCHMARKING THE WORKING SET OF WINDOW-BASED COMPUTER SYSTEMS; NAYEEM ISLAM, 707/202; 364/264, 264.3, 280, 280.6, 281.3, 282, 285, 286, 286.3, 927.2, 927.4, 927.63, 927.81, 928, 929.12, 931, 931.5, 932, 932.1, 932.4, 932.5, 946.2, 950, 950.3, 950.4, 957, 957.1, 957.8, 962, 962.4, 975.4, DIG.1, DIG.2; 395/182.14 [IMAGE AVAILABLE]

3. 3,948,331, APR. 6, 1976, TRACK ASSEMBLY FOR SNOWMOBILES; RICHARD E. ESCH, 305/132; 180/193 [IMAGE AVAILABLE]

US PAT NO: 5,686,276 [IMAGE AVAILABLE] L2: 1 OF 3
SUMMARY: BSUM(14)
IN KLEBSIELLA PNEUMONIAE AND CITROBACTER FREUNDII, THE GENES ENCODING THE FUNCTIONALLY LINKED ACTIVITIES OF GLYCEROL DEHYDRATASE (DHAB), 1,3-PROPANEDIOL OXIDOREDUCTASE (**DHAT**), GLYCEROL DEHYDROGENASE (DHAD), AND DIHYDROXYACETONE KINASE (DHAK) ARE ENCOMPASSED BY THE DHA REGULON. THE DHA REGULONS FROM CITROBACTER AND KLEBSIELLA. . .

DETDESC: DETD(60) THE . . . ACHIEVED BY PLACING THE NECESSARY STRUCTURAL GENES UNDER THE CONTROL OF ALTERNATE PROMOTORS AS HAS BEEN DEMONSTRATED FOR 1,3-PROPANEDIOL OXIDOREDUCTASE (**DHAT**) FROM C. FREUNDII AND DIOL DEHYDRATASE FROM K. OXYTOCA ATCC 8724 (DANIEL ET AL., J. BACTERIOL. 177, 2151 (1995) AND. . .

L3
1. 5,753,723, MAY 19, 1998, DENTURE FIXATIVE WITH AN ADHESION PROMOTER; TIANG SHING CHANG, ET AL., 523/120; 106/35; 514/574; 524/42, 239, 321, 549, 559 [IMAGE AVAILABLE]

2. 5,750,591, MAY 12, 1998, DENTURE ADHESIVE CONTAINING PARTIAL IRCONIUM, CALCIUM, SODIUM GANTREZ SALT; HAL C. CLARKE, ET AL., 523/120; 433/228.1; 523/118; 524/45, 559; 525/370 [IMAGE AVAILABLE]

3. 5,723,106, MAR. 3, 1998, REDUCED ALCOHOL MOUTHWASH ANTISEPTIC AND ANTISEPTIC PREPARATION; R. MICHAEL BUCH, ET AL., 424/49, 58 [IMAGE AVAILABLE]

4. 5,699,269, DEC. 16, 1997, METHOD FOR PREDICTING CHEMICAL OR PHYSICAL PROPERTIES OF CRUDE OILS; TERRENCE RODNEY ASHE, ET AL., 702/30; 436/29, 60 [IMAGE AVAILABLE]

5. 5,696,181, DEC. 9, 1997, DENTURE FIXATIVE; TIANG-SHING CHANG, ET AL., 523/118; 430/180; 523/120; 524/28, 45, 55, 377, 439, 440 [IMAGE AVAILABLE]

6. 5,686,276, NOV. 11, 1997, BIOCONVERSION OF A FERMENTABLE CARBON SOURCE TO 1,3-PROPANEDIOL BY A SINGLE MICROORGANISM; LISA ANNE LAFFEND, ET AL., 435/158, 252.31, 252.33 [IMAGE AVAILABLE]

7. 5,650,479, JUL. 22, 1997, INTERFACIALLY POLYMERIZED POLYESTER FILMS; PAUL G. GLUGLA, ET AL., 528/194; 95/43, 54; 210/500.21, 500.26; 528/176, 193 [IMAGE AVAILABLE]

8. 5,569,581, OCT. 29, 1996, ALTERATION AND PREDICTION OF MALE FERTILITY USING SEMINAL PLASMA AND ITS COMPONENTS; GARY KILLIAN, ET AL., 435/4; 424/520; 435/806 [IMAGE AVAILABLE]

9. 5,561,177, OCT. 1, 1996, HYDROCARBON FREE DENTURE ADHESIVE; NILOFAR KHALEDI, ET AL., 524/35; 433/180; 523/120; 524/43, 45, 313, 492 [IMAGE AVAILABLE]

10. 5,543,443, AUG. 6, 1996, DENTURE STABILIZING COMPOSITIONS; JAYANTH RAJAIAH, ET AL., 523/120; 522/148; 523/116, 118; 524/28, 31, 45, 55, 261, 267, 377, 522, 557; 525/100, 101, 102, 207, 328.9, 366, 474, 477, 478, 479; 526/279; 528/15, 26, 31, 32, 33, 374 [IMAGE AVAILABLE]

11. 5,461,155, OCT. 24, 1995, ORGANIC SOLUBLE METAL-AZO AND METAL-AZOMETHINE DYES; TERRANCE P. SMITH, ET AL., 546/12 [IMAGE AVAILABLE]

12. 5,424,058, JUN. 13, 1995, DENTURE STABILIZING COMPOSITIONS COMPRISING A MIXED PARTIAL SALT OF A LOWER ALKYL VINYL ETHER-MALEIC ACID COPOLYMER; JAYANTH RAJAIAH, ET AL., 424/49; 106/35; 523/120; 525/328.9, 366, 370; 526/240 [IMAGE AVAILABLE]

13. 5,405,836, APR. 11, 1995, PET FOODS WITH WATER-SOLUBLE ZINC COMPOUND COATING FOR CONTROLLING MALODOROUS BREATH; THOMAS RICHAR, ET AL., 514/23; 424/49, 53, 439, 442; 426/72, 74, 805 [IMAGE AVAILABLE]

14. 5,314,998, MAY 24, 1994, ORGANIC SOLVENT-SOLUBLE METAL-AZO AND METAL-AZOMETHINE DYES; TERRANCE P. SMITH, ET AL., 534/701, 710, 711, 713, 723 [IMAGE AVAILABLE]

15. 5,304,616, APR. 19, 1994, DENTURE STABILIZING COMPOSITIONS HAVING IMPROVED HOLD; JAYANTH RAJAIAH, ET AL., 526/240; 523/118, 120; 525/327.8 [IMAGE AVAILABLE]

16. 5,242,834, SEP. 7, 1993, ANALYSIS OF ALUMINUM IN AMINO ACIDS BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY; DURGA V. SUBRAMANIAN, 436/73; 73/61.52; 210/656; 436/74, 161, 174, 175, 182 [IMAGE AVAILABLE]

17. 5,225,514, JUL. 6, 1993, AZO CONTAINING POLYURETHANES FOR DRUG DELIVERY TO THE LARGE INTESTINES; YOSHIHARU KIMURA, ET AL., 528/76; 514/772.3; 528/85 [IMAGE AVAILABLE]

18. 5,165,914, NOV. 24, 1992, ORAL COMPOSITIONS CONTAINING ZINC LACTATE COMPLEXES; RICHARD S. VLOCK, 424/52, 49, 641, 642, 643, 673, 676 [IMAGE AVAILABLE]

19. 5,094,845, MAR. 10, 1992, ORAL COMPOSITIONS CONTAINING ZINC GLUCONATE COMPLEXES; RICHARD S. VLOCK, 424/52, 49, 53, 55, 613, 641, 643, 673 [IMAGE AVAILABLE]

20. 5,073,604, DEC. 17, 1991, DENTURE STABILIZING COMPOSITIONS; KENNETH T. HOLEVA, ET AL., 525/327.8; 523/120; 525/327.9, 328.9, 366, 370; 526/240 [IMAGE AVAILABLE]

21. 5,050,692, SEP. 24, 1991, METHOD FOR DIRECTIONAL DRILLING OF SUBTERRANEAN WELLS; HERBERT W. BEIMGRABEN, 175/61, 74, 76, 256 [IMAGE AVAILABLE]

22. 4,980,391, DEC. 25, 1990, DENTURE ADHESIVES AND METHODS FOR PREPARING SAME; LORI D. KUMAR, ET AL., 524/45; 106/35; 523/120; 524/492 [IMAGE AVAILABLE]

23. 4,948,580, AUG. 14, 1990, MUCO-BIOADHESIVE COMPOSITION; IVAN BROWNING, 514/772.5; 424/434, 435, 443, 447, 448, 484; 514/944, 969 [IMAGE AVAILABLE]

24. 4,937,066, JUN. 26, 1990, ZINC CONTAINING ORAL COMPOSITIO[redacted]HARD S. VLOCK, 424/52, 49, 53, 55, 613, 614, 641, 643, 673 [IMAG[redacted]LABLE]

25. 4,817,740, APR. 4, 1989, APPARATUS FOR DIRECTIONAL DRILLING OF SUBTERRANEAN WELLS; HERBERT W. BEIMGRABEN, 175/74, 76, 2[redacted] [IMAGE AVAILABLE]

26 4,747,415, MAY 31, 1988, METHOD AND DEVICE FOR MEASURING PENILE RIGIDITY; PIERRE LAVOISIER, 600/587, 507 [IMAGE AVAILABLE]

27. 4,717,260, JAN. 5, 1988, TIME DIFFERENTIAL CORRECTING ANALOG TIMEPIECE OF TWENTY-FOUR HOUR SYSTEM; SHIGERU TSUJI, 368/21; 968/167, DIG.1 [IMAGE AVAILABLE]

28. 4,560,013, DEC. 24, 1985, APPARATUS FOR DIRECTIONAL DRILLING AND THE LIKE OF SUBTERRANEAN WELLS; HERBERT W. BEIMGRABEN, 175/73, 325.2 [IMAGE AVAILABLE]

29. 4,404,088, SEP. 13, 1983, THREE-STAGE HYDROCRACKING PROCESS; ROBERT W. BACHTEL, ET AL., 208/59, 111 [IMAGE AVAILABLE]

30. 3,926,577, DEC. 16, 1975, CORROSION INHIBITOR FOR VANADIUM-CONTAINING FUELS; MICHAEL J. ZETLMEISL, ET AL., 44/320, 354; 252/387 [IMAGE AVAILABLE]

31. 3,691,408, SEP. 12, 1972, METHOD AND MEANS FOR THERMOELECTRIC GENERATION OF ELECTRICAL ENERGY; JOHN B. ROSSO, 310/306; 62/5; 136/209, 211 [IMAGE AVAILABLE]

US PAT NO: 5,686,276 [IMAGE AVAILABLE] L3: 6 OF 31
SUMMARY: BSUM(14) IN KLEBSIELLA PNEUMONIAE AND CITROBACTER FREUNDII, THE GENES ENCODING THE FUNCTIONALLY LINKED ACTIVITIES OF GLYCEROL DEHYDRATASE (**DHAB**), 1,3-PROPANEDIOL OXIDOREDUCTASE (DHAT), GLYCEROL DEHYDROGENASE (DHAD), AND DIHYDROXYACETONE KINASE (DHAK) ARE ENCOMPASSED BY THE DHA REGULON. THE DHA REGULONS FROM. . .

(FILE 'HOME' ENTERED AT 15:35:10 ON 15 JUN 1998)

FILE 'REGISTRY' ENTERED AT 15:35:25 ON 15 JUN 1998
L1 40518 S 1, 3-PROPANEDIOL
L2 7000 S GLYCEROL
L3 74 S DIHYDROXYACETONE

FILE 'CAPLUS' ENTERED AT 15:36:41 ON 15 JUN 1998

FILE 'REGISTRY' ENTERED AT 15:44:28 ON 15 JUN 1998
L4 1 S GLYCEROL DEHYDRATASE

FILE 'CAPLUS' ENTERED AT 15:44:53 ON 15 JUN 1998
L5 61 S L4
L6 94627 S ASPERGILLUS OR SACCHAROMYCES OR ZYGOSACCHAROMYCES OR PICHIA OR KLUYVEROMYCES OR CANDIDA OR HANSENULA
L7 136502 S DEBARYOMYCES OR MUCOR OR TORULOPSIS OR METHYLOBACTER OR SALMONELLA OR BACILLUS OR STREPTOMYCES OR PSEUDOMONAS
L8 222558 S L6 OR L7
L9 3 S L5 AND L8
L10 6439 S 1, 3-PROPANEDIOL
L11 108 S L8 AND L10 NOT L9
L12 219 S 504-63-2P/IT
L13 8 S L12 AND L8

L9 ANSWER 1 OF 3 CAPLUS COPYRIGHT 1998 ACS
AN 1997:34085 CAPLUS DN 126:58953
TI Bioconversion of a fermentable carbon source to 1,3-propanediol by a single microorganism expressing a foreign glycerol or diol dehydratase gene
IN Laffend, Lisa Anne; Nagarajan, Vasantha; Nakamura, Charles Edwin
PA E.I. Du Pont De Nemours and Company, USA; Genencor International, Inc.; Laffend, Lisa Anne; Nagarajan, Vasantha; Nakamura, Charles Edwin
SO PCT Int. Appl., 109 pp. CODEN: PIXXD2
PI WO 9635796 A1 961114
DS W: AL, AU, BB, BG, BR, CA, CN, CZ, EE, GE, HU, IS, JP, KP, KR, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG
AI WO 96-US6705 960510 PRAI US 95-440293 950512 DT Patent LA English
AB A process is provided for the bioconversion of a carbon substrate, preferably glucose, to 1,3-propanediol by a single organism utilizing microorganisms contg. the genes encoding for an active glycerol or diol dehydratase enzyme. Specifically, the glyceroldehydratase gene of Klebsiella pneumoniae is used to prep. a transgenic microorganism capable of forming 1,3-propanediol from glucose in high yield. A cosmid covering the dha regulon of K. pneumoniae was cloned and the gene for the dehydratase (dhaB1, dhaB2, dhaB3) and the propanediol dehydrogenase were cloned and expressed in a variety of prokaryotic and eukaryotic microbial hosts with the manuf. of the propanediol from glucose or maltose demonstrated.

L9 ANSWER 2 OF 3 CAPLUS COPYRIGHT 1998 ACS
AN 1997:6102 CAPLUS DN 126:30403
TI Process for making 1,3-propanediol from carbohydrates using mixed microbial cultures
IN Haynie, Sharon Loretta; Wagner, Lorraine Winona
PA E.I. Du Pont De Nemours and Company, USA; Haynie, Sharon Loretta; Wagner, Lorraine Winona
SO PCT Int. Appl., 30 pp. CODEN: PIXXD2
PI WO 9635799 A1 961114
DS W: AL, AU, BB, BG, BR, CA, CN, CZ, EE, GE, HU, IS, JP, KP, KR, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG
AI WO 96-US6161 960502 PRAI US 95-440379 950512 DT Patent LA English
AB The present invention provides a process for the biotransformation of a carbohydrate C source to 1,3-propanediol using mixed yeast and bacterial cultures wherein the carbohydrate is 1st Fermented to glycerol by the yeast cell and then converted to 1,3-propanediol by the bacterial cellcontg. an active diol or glycerol dehydratase enzyme. In this process both the yeast and bacterial cultures are supported on the same C source and 1,3-propanediol is isolated from the media.

L9 ANSWER 3 OF 3 CAPLUS COPYRIGHT 1998 ACS
AN 1995:841557 CAPLUS DN 124:46914
TI Rapid expansion of the physical and genetic map of the chromosome of Clostridium perfringens CPN50
AU Katayama, Sei-Ichi; Dupuy, Bruno; Garnier, Thierry; Cole, Stewart T.
CS Unite Genetique Moleculaire Bacterienne, Inst. Pasteur, Paris, 75724, Fr.
SO J. Bacteriol. (1995), 177(19), 5680-5 CODEN: JOBAAY; ISSN: 0021-9193 DT Journal LA English
AB The phys. map of the 3.6-megabase chromosome of Clostridium perfringens CPN50 was extended by positioning sites for the endonucleases SfiI and I-CeuI, and in parallel, the gene map was expanded by using a genome scanning strategy. This involved the cloning and sequencing of random chromosomal fragments, identification of the functions of the putative genes by database searches, and then hybridization anal. The current gene map comprises almost 100 markers, many of which encode housekeeping functions while others are involved in sporulation or Pathogenesis. Strikingly, most of the virulence genes were found to be confined to a 1200-kb segment of the chromosome near oriC, while the pleiotropic regulatory locus, virRS, was situated toward the putative replication terminus. A comparison of the gene maps of 3 endospore-forming bacilli, C. perfringens, Clostridium beijerinckii, and *Bacillus* subtilis, revealed a similar order and distribution of key sporulation and heat shock genes which might reflect an ancient evolutionary relationship.

L13 ANSWER 1 OF 8 CAPLUS COPYRIGHT 1998 ACS
TI Metabolic engineering of propanediol pathways

L13 ANSWER 2 OF 8 CAPLUS COPYRIGHT 1998 ACS
TI Metabolic engineering of an improved 1,3-propanediol fermentation (Klebsiella pneumoniae, *Bacillus* licheniformis)

L13 ANSWER 3 OF 8 CAPLUS COPYRIGHT 1998 ACS
TI Production of 1,3-propanediol from glycerol by recombinant bacteria expressing recombinant diol dehydratase

L13 ANSWER 4 OF 8 CAPLUS COPYRIGHT 1998 ACS
TI Bioconversion of a fermentable carbon source to 1,3-propanediol by a single microorganism expressing a foreign glycerol or diol dehydratase gene

L13 ANSWER 5 OF 8 CAPLUS COPYRIGHT 1998 ACS
TI Process for making 1,3-propanediol from carbohydrates using mixed microbial cultures

L13 ANSWER 6 OF 8 CAPLUS COPYRIGHT 1998 ACS
TI Microbial production and downstream processing of 2,3-butanediol

L13 ANSWER 7 OF 8 CAPLUS COPYRIGHT 1998 ACS
TI Fermentative manufacture of 1,3-propanediol from glycerol

L13 ANSWER 8 OF 8 CAPLUS COPYRIGHT 1998 ACS
TI Neutral solvent production from halophilic, photolithotrophically grown algae by linked fermentations

L13 ANSWER 1 OF 8 CAPLUS COPYRIGHT 1998 ACS
AN 1998:56526 CAPLUS DN 128:87891
TI Metabolic engineering of propanediol pathways
AU Cameron, D. C.; Altaras, N. E.; Hoffman, M. L.; Shaw, A. J.
CS Department of Chemical Engineering, University of WisconsinMadison, Madison, WI, USA
SO Biotechnol. Prog. (1998), 14(1), 116-125 CODEN: BIPRET; ISSN: 8756-7938 PB American Chemical Society DT Journal; General Review LA English
AB A review with many refs. Microbial fermn. is an important technol. for the conversion of renewable resources to chems. In this paper, the authors describe the application of metabolic ngineering for the development of two new fermn. processes: the microbial conversion of sugars to 1,3-propanediol (1,3-PD) and 1,2-propanediol (1,2-PD). A variety of naturally occurring organisms ferment glycerol to 1,3-PD, but no natural organisms ferment sugars directly to 1,3-PD. The authors first describe the fed-batch fermn. Of glycerol to 1,3-PD by Klebsiella pneumoniae. They then present various approaches for the conversion of sugars to 1,3-PD, including mixed-culture fermn., cofermentation of glycerol and glucose, and metabolic engineering of a "sugars to 1,3-PD" pathway in a Single organism. Results are reported for the expression of genes from the K. pneumoniae 1,3-PD pathway in "Saccharomyces" cerevisiae. The best naturally occurring organism for the fermn. of sugars to 1,2-PD is Thermoanaerobacterium thermosaccharolyticum. The authors describe the fermn. of several different sugars to 1,2-PD by this organism in batch and continuous culture. They report that Escherichia coli strains engineered to express either aldose reductase or glycerol dehydrogenase convert glucose to (R)-1,2-PD. The authors then analyze the ultimate potential of fermn. Processes for the prodn. of propanediols. Linear optimization studies indicate that, under aerobic conditions, propanediol yields that approach the theor. max. are possible and CO2 is the primary coproduct. Without the need to produce acetate, final product titers in the range of 100 g/L should be possible; the high titers and low coproduct levels should make product recovery and purifn. straightforward. The examples given in this paper illustrate the importance of metabolic engineering for fermn. process development in general.

L13 ANSWER 2 OF 8 CAPLUS COPYRIGHT 1998 ACS
AN 1997:517535 CAPLUS DN 127:123605
TI Metabolic engineering of an improved 1,3-propanediol fermentation (Klebsiella pneumoniae, *Bacillus* licheniformis)
AU Skraly, Frank Anthony
CS Univ. of Wisconsin, Madison, WI, USA
SO (1997) 221 pp. Avail.: UMI, Order No. DA9716075 From: Diss. Abstr. Int., B 1997, 58(3), 1414 DT Dissertation LA English
AB Unavailable

L13 ANSWER 7 OF 8 CAPLUS COPYRIGHT 1998 ACS
AN 1990:234037 CAPLUS DN 112:234037
TI Fermentative manufacture of 1,3-propanediol from glycerol
IN Kretschmann, Josef; Carduck, Franz Josef; Deckwer, Wolf Dieter; Tag, Carmen
PA Henkel K.-G.a.A., Fed. Rep. Ger.; Gesellschaft fuer Biotechnologische Forschung m.b.H. (GBF)
SO Ger. Offen., 7 pp. CODEN: GWXXBX
PI DE 3829618 A1 900315 AI DE 88-3829618 880901 DT Patent LA German
AB Propane-1,3-diol is manufd. from a glycerol-contg. soln. (5-20% by wt.) with a microorganism such as Clostridium, Enterobacterium, Lactobacillus, *Bacillus*, Citrobacter, or Klebsiella in a yield of .gtoreq.0.5 g/h/L. Klebsiella pneumoniae DSM 2026 was batch-cultured at 37.degree. under anaerobic conditions to yield a max. of 2.3 g propane-1,3-diol from a starting glycerol concn. of 100 g/L; other glycerol concns. (50-200 g/L) produced lower yields.

L13 ANSWER 8 OF 8 CAPLUS COPYRIGHT 1998 ACS
AN 1983:214106 CAPLUS DN 98:214106
TI Neutral solvent production from halophilic, photolithotrophically grown algae by linked fermentations
AU Nakas, J. P.; Schaedle, M.; Parkinson, C. M.; Coonley, C. E.; Tanenbaum, S. W.
CS Coll. Environ. Sci. For., SUNY, Syracuse, NY, 13210, USA
SO Comm. Eur. Communities, [Rep.] EUR (1983), EUR 8245, Energy Biomass, 298-302 CODEN: CECED9 DT Report LA English
AB Five species of Dunaliella were examd. for glycerol [56-81-5] accumulation, growth rate, cell d., and protein and chlorophyll content. The suitability of each algal species for such bioconversions was judged according to glycerol accumulation and quantities of neutral solvents produced after sequential bacterial fermns. When grown in 2M NaCl, with 24 mM NaHCO3 or 3% CO2 at 28.degree., and with 25,000 lx at container surface, 4 of the 5 species tested (D. tertiolecta, D. primolecta, D. parva, and D. bardawil) produced 10-20 mg of glycerol/L. A Clostridium converted an algal biomass mixt. supplemented with 4% glycerol to .apprx.18 g/L of mixed alcs. (EtOH [64-17-5], 1,3-propanediol [504-63-2], and BuOH [71-36-3]). Acetone was not detected. A soil isolate, tentatively classified as a member of the genus "Bacillus", converts glycerol into EtOH at a final concn. of 7.0-9.6 g/L. An enrichment culture from sewage sludge resolved to contain 2 gram-neg. rods converts the algal biomass-glycerol mixt. solely to 1,3-propanediol [504-63-2] at a final concn. of 4.2-5.3 g/L. Addnl., Dunaliella concs., of .ltoreq.200-fold, can be directly fermented to mixed solvents.

Welcome to DIALOG

16jun98 07:58:45 User208600 Session D1155.1

File 351:DERWENT WPI 1963-1998/UD=9823;UP=9820;UM=9818 (c)1998 Derwent Info Ltd

Set Items Description
S1 0 PN=3829618
S2 0 IN=KRETSCHMANN, J?
S3 0 AU=KRETCHSMANN,?
S4 1 PN= DE 3829618
S5 0 CN=504-63-2
S6 29 CN=R01300-P
S7 10007 ASPERGILLUS OR SACCHAROMYCES OR ZYGOSACCHAROMYCES OR PICHIA OR KLUYVEROMYCES OR CANDIDA OR HANSENULA OR DEBARYOMYCES OR - MUCOR
S8 18645 TORULOPSIS OR METHYLOBACTER OR SALMONELLA OR BACILLUS OR STREPTOMYCES OR PSEUDOMONAS
S9 26603 S7 OR S8
S10 2 S6 AND S9
S11 2019 TRIMETHYLENE(W)GLYCOL OR 1(W)3(W)(PROPANEDIOL OR PROPANE (- N)DIOL)
S12 41 S11 AND S9 NOT S10

4/7/1 DIALOG(R)File 351:DERWENT WPI (c)1998 Derwent Info Ltd. All rts. reserv.
008197141
WPI Acc No: 90-084142/199012
Conversion of glycerol to propane 1,3-diol - by fermentation using glycerol as sole source of carbon
Patent Assignee: GBF GES BIOTECHN FORSCH (GBFB); HENKEL KGAA (HENK); GBF GES BIOTECH FORSCHUNG GMBH (GBFB)
Inventor: CARDUCK E J; DECKWER W D; KRETSCHMAN J; TAG C; BIEBL H; CARDUCK F ; DECKWER W; KRETSCHMANN J
Number of Countries: 003 Number of Patents: 003
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
DE 3829618 A 19900315 DE 3829618 A 19880901 199012 B
JP 3065192 A 19910320 JP 89228160 A 19890901 199118
US 5254467 A 19931019 US 89402209 A 19890901 C12P-007/04 199343
US 91691648 A 19910425
Priority Applications (No Type Date): DE 3829618 A 19880901; DE 3924423 A 19890724
Patent Details:
Patent Kind Lan Pg Filing Notes Application Patent
DE 3829618 A 7
US 5254467 A 8 CIP of US 89402209
Abstract (Basic): DE 3829618 A
Glycerol is converted to 13-propane diol by using a strain of Clostridium, Enterobacterium, Lactobacillus, Bacillus, Citrobacter, Aerobacter, or Klebsiella, which, under standard fermentation conditions, coverts a 5% glycerol soln. as sole C source to 1,3-propanediol at a space-time yield of more than 0.5 g/h/l. These are used for the technical conversion of 5-20% glycerol solns., as sole C source, under anaerobic conditions and at constant pH. After consumption of the glycerol, the biomass is sepd., and the prod. mixt. is processed by distn.
USE/ADVANTAGE - Esp. that obtd. in processing triglycerides (claimed). Other useful prods. may be obtd. in addn. to propane diol, e.g. 2,3-butane diol, ethanol, acetoin, acetic and/or lactic-acid. Glycerol solns. of concn. up to 20 wt.% can be used. The solns. need not be pure. 0/0
Abstract (Equivalent): US 5254467 A
Transformation of glycerol into 1,3-propanediol by microorganisms comprises fermenting, under standard anaerobic fermentation conditions and constant pH, a strain selected from clostridium butyrium SH1 (DSM 5431) and clostridium butyrium AK1 (DSM 5430) and mutants in a medium comprising aq. glycerol soln. contg. 5-20 wt.% glycerol to produce a biomass and 1,3-propanediol soln, in a vol./time yield to more tha 2.2g.hr-IE-1.a, and sepg. 1,3-propanediol from the biomass. The glycerol soln. is a triglyceride processing stream from the saponification of fats having a low lauric acid content. The soln. pref. comprises 10-15 wt.% glycerol, the pH is maintained at 6.5-8 and the temp. is pref. 27-40 deg. C. The inoculum is pref. 5-20 vol.%.
USE/ADVANTAGE - The fermentation is easy to handle on an industrial scale and is capable of converting high concns. of glycerol into propanediol under standard fermentation conditions with a vol./time yield of more than 0.5 g hr-IE-1 with the experted catadolic repression which is normally encountered with media accumulating high propanediol concns.
Dwg.0/0
Derwent Class: D16; E17
International Patent Class (Main): C12P-007/04
International Patent Class (Additional): C07C-031/20; C12P-007/18; C12R-001/145

6/TI/1 DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-Propane-diol production using phosphine ligand-free cobalt catalyst - giving high yield and selectivity and allowing almost complete recovery of cobalt catalyst

6/TI/2DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Selective and economic 1,3-propane-diol prepn. for polyester prodn. - by reacting cobalt salt with synthesis gas, contacting with ethylene oxide in non-water-miscible liq., and hydrogenating 3-hydroxy-propanal

6/TI/3DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Prepn. of 1,3-propane diol - comprises hydrogenation of glycidoaldehyde in aq. soln. contg. alcohol(s) in the presence of nickel catalyst.

6/TI/4DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Fermentative prodn. of 1,3-propane-diol useful for polymer prodn. - from carbon substrates using mixed culture of glycerol-producing and diol-producing organisms

6/TI/5DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Prodn. of 1,3-propanediol, useful in [illegible]r prodn. - by fermenting carbon source with single dehydratase expressing microbe, partic. recombin[illegible]coli carrying Klebsiella gene

6/TI/6DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Cosmid contg. Klebsiella pneumoniae gene for diol dehydratase - and related transformed microorganisms able to convert glycerol to 1,3-propanediol for polymer prodn

6/TI/7DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Purifying carbonyl-contg. 1,3-propane-diol compsn., used in condensn. polymer prepn. - by forming acidic soln. of the 1,3-propane-diol compsn. adding base, distilling water and then prod. from basic soln.

6/TI/8DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-propane-diol prepn. used in polyester mfr. - by reacting ethylene oxide, carbon monoxide and hydrogen over an arsine promoted cobalt carbonyl catalyst.

6/TI/9DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-Propane-diol prepn. for fibres for high yield and selectivity - by reacting ethylene oxide carbon monoxide and hydrogen over quat. phosphonium salt promoted cobalt carbonyl catalyst, for polyester mfr..

6/TI/10DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-propane-diol prepn. - by reacting ethylene oxide, carbon monoxide and hydrogen@ over quat. ammonium salt promoted cobalt carbonyl catalyst, used in polyester mfr.

6/TI/11DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Prodn of 1,2- and 1,3-propanediol from aq. glycerol - by catalytic dehydration, hydration and hydrogenation

6/TI/12DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-propanediol and 3-hydroxy-propanal prepn. - by reacting ethylene oxide with carbon monoxide and hydrogen@ over promoted phosphine complex cobalt carbonyl and ruthenium catalysts

6/TI/13DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Acrolein prodn. - by dehydration of a glycerine-water mixt. using a solid acid catalyst, esp. a zeolite

6/TI/14DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Increasing yield in propane-1,3-diol prodn. from acrolein - by hydration and catalytic hydrogenation by cracking 4-oxa-heptane-1,7-diol sepd. from high boiling by-product over solid acid catalyst

6/TI/15DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Bacterial prod. for converting glycerol to 1,3-propanediol in high yield - derived from new anaerobic strains of Enterobacter, Corynebacterium or Citrobacter

6/TI/16DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-Propane-diol prodn. for polyester prodn., etc. - by catalytic hydrogenation of hydroxypropionaldehyde in aq. soln. in a solid-bed or suspension system

6/TI/17DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Propane-1,3-diol prodn. - by hydrogenation of hydroxy-propionaldehyde on catalyst contg. specified percentage of finely divided platinum@, on titanium dioxide support

6/TI/18DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Propane-1,3-diol prepn. - by reacting acrolein and water in presence of chelate building ion-exchange resin and catalytically hydrogenating 3-hydroxypropionaldehyde formed

6/TI/19DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Enhancing stability of polymeric reverse osmosis membrane - by contacting membrane with soln. contg. stabilising amt. of polyvalent cation (s)

6/TI/20DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-Propanediol prepn. by hydration of acrolein - in aq. soln. over hydrated alumina-bound zeolite of pore size greater than 5 angstroms

6/TI/21DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Anaerobic microbial conversion of substrate to metabolite - is in airlift reactor with passage of inert gas

6/TI/22DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-propanediol prodn. from acrolein - by hydration using phosphonic acid resin catalyst, followed by catalytic hydrogenation

6/TI/23DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-Propane diol mfr. by epoxide hydrocarbonylation - by reacting ethylene oxide, tricyclohexylphosphine, water, carbon monoxide, hydrogen and opt. an acid using rhodium catalyst in ether

6/TI/24DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Microbiological prepn. of 1,3-propane-diol - from glycerol and a sugar hydrogen-donor, under controlled addn. conditions

6/TI/25DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1,3-Propane diol prodn. by fermentation of aq. glycerine soln. - with selected microorganism, then removal of biomass and distn. of prod.

6/TI/26DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Conversion of glycerol to propane 1,3-diol - by fermentation using glycerol as sole source of carbon

6/TI/27DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
High yield microbial prodn. of 1,3-propane diol from glycerine - using Klebsiella pneumoniae in media contg. cobalt salt and sugar

6/TI/28DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Purificn. of propane 1,3 diol - prepd. by addn. of water to acrolein, by extraction with cyclohexane

6/TI/29DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Prodn. of propane-diol from glycerol - using carbon monoxide and hydrogen in a basic organic solvent in the presence of tungsten and Gp-VIII metal?

FILE 'REGISTRY' ENTERED AT 12:11:54 ON 09 DEC 1997
L1 477 S HYDRATASE?

FILE 'MEDLINE' ENTERED AT 12:12:06 ON 09 DEC 1997
L2 1 S L1

FILE 'REGISTRY' ENTERED AT 12:12:32 ON 09 DEC 1997
L3 581 S DEHYDRATASE?

FILE 'MEDLINE' ENTERED AT 12:12:50 ON 09 DEC 1997
L4 5 S L3

FILE 'REGISTRY' ENTERED AT 12:13:58 ON 09 DEC 1997
L5 1 S GLYCEROL DEHYDRATASE
L6 2 S DIOL DEHYDRATASE

FILE 'MEDLINE' ENTERED AT 12:14:36 ON 09 DEC 1997
L7 0 S L5
L8 0 S L6
E DEHYDRATASES/CT
E E4
E DEHYDRATASE/CT
E DEHYDRATASE/CN
E HYDRO LYASES
E HYDRO LYASES/CT
L9 2938 S E9
L10 77716 S CLONING, MOLECULAR/CT
L11 125 S L9 AND L10
L12 37111 S KLEBSIELLA OR LACTOBACILLUS OR ENTEROBACTER OR CITROBACTER OR PELOBACTER OR ILYOBACTER OR CLOSTRIDIUM
L13 4 S L11 AND L12
E GLYCEROL DEHYDRATASE
E GLYCEROL DEHYDRATASE/CT
E DIOL DEHYDRATASE
E DIOL DEHYDRATASE/CT
E DIOL DEHYDRATASE/CN
E GLYCEROL DEHYDRATASE/CN
L14 12 S E3
L15 0 S L14 NOT L9
L16 155 S L12 AND L9 NOT L13
E KLEBSIELLA/CN
E KLEBSIELLA/CT
E L9
E HYDRO LYASES/CT
L17 291 S E22
L18 7 S L17 AND L12
L19 3 S L18 NOT L13

FILE 'SCISEARCH' ENTERED AT 12:32:16 ON 09 DEC 1997
E SPRENGER G, 1989/RE
E SPRENGER G A, 1989/RE
L20 9 S E4

L4 ANSWER 1 OF 5 MEDLINE
TI Site-directed mutagenesis of monofunctional chorismate mutase engineered from the E. coli P-protein.

L4 ANSWER 2 OF 5 MEDLINE
TI Genetic aspects of aromatic amino acid biosynthesis in Lactococcus lactis.

L4 ANSWER 3 OF 5 MEDLINE
TI The pheA/tyrA/aroF region from Erwinia herbicola: an emerging comparative basis for analysis of gene organization and regulation in enteric bacteria.

L4 ANSWER 4 OF 5 MEDLINE
TI Loss of allosteric control but retention of the bifunctional catalytic competence of a fusion protein formed by excision of 260 base pairs from the 3' terminus of pheA from Erwinia herbicola.

L4 ANSWER 5 OF 5 MEDLINE
TI Cloning, sequencing, and expression of the P-protein gene (pheA) of Pseudomonas stutzeri in Escherichia coli: implications forevolutionary relationships in phenylalanine biosynthesis.

L13 ANSWER 1 OF 4 MEDLINE
AN 96422012 MEDLINE
TI Cloning, sequencing, and overexpression of the genes encoding coenzyme B12-dependent glycerol dehydratase of ***Citrobacter*** freundii.
AU Seyfried M; Daniel R; Gottschalk G
CS Institut fu

6/7/15DIALOG(R)File 351:DERWENT WPI(c)1998 Derwent Info Ltd. All rts. reserv.
009727703 WPI Acc No: 94-007553/199401
Bacterial prod. for converting glycerol to 1,3-propanediol in high yield - derived from new anaerobic strains of Enterobacter, Corynebacterium or Citrobacter
Patent Assignee: INST NAT RECH AGRONOMIQUE (INRG); INRA INST NAT RECH AGRONOMIQUE (INRG)
Inventor: BORIES A; CLARET C
Number of Countries: 017 Number of Patents: 005
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
WO 9325696 A1 19931223 WO 93FR568 A 19930614 C12P-007/18 199401 B
FR 2692281 A1 19931217 FR 927212 A 19920615 C12P-021/00 199403
EP 648273 A1 19950419 EP 93913124 A 19930614 C12P-007/18 199520 WO 93FR568 A 19930614
EP 648273 B1 19960828 EP 93913124 A 19930614 C12P-007/18 199639 WO 93FR568 A 19930614
DE 69304332 E 19961002 DE 604332 A 19930614 C12P-007/18 199645 EP 93913124 A 19930614 WO 93FR568 A 19930614
Priority Applications (No Type Date): FR 927212 A 19920615
Cited Patents: 2.Jnl.Ref; EP 361082
Patent Details:
Patent Kind Lan Pg Filing Notes Application Patent
WO 9325696 A1 F 34
FR 2692281 A1 25
EP 648273 A1 F Based on WO 9325696
EP 648273 B1 F 14 Based on WO 9325696
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
DE 69304332 E Based on EP 648273
Based on WO 9325696
Abstract (Basic): WO 9325696 A
Bacterial products (A) which can convert glycerol (I) to 1.3-propanediol (II) areprepd. by: (1) preculture of anaerobic populations, derived from anaerobic habitats, under anaerobic conditions on a buffered nutrient medium contg. (I) as sole carbon source; (2) isolating those precultures able to ferment (I); (3) enriching these precultures by discontinuous fermentation in an anaerobic reactor on (I)-based medium of controlled pH, and (4) isolating (A).
Also new are (A) themselves and the bacterial strains Enterobacter agglomerans CNCM I-1210 (most pref.); Clostridium butyricum I-1211 and Citrobacter amalonaticus I-1212.
USE/ADVANTAGE - (A) provide high yield conversion of (I) to (II) without significant by-product formation. (II) is used in synthesis of polyurethanes and polyesters; as an additive (esp. humectant) for foods and pharmaceuticals; in animal feeds; tobacco etc. (II) can now be produced from animal/plant waste materials, partic. by-products of alcohol distn.; avoiding the chemical synthesis from acrolein (which is toxic; derived from non-renewable resources and converted only with significant by-product formation). Dwg.0/5
Abstract (Equivalent): EP 648273 B
Process for the production of products having bacterial activity and capable of converting glycerol into 1,3-propanediol, said process comprising the steps of (a) preculturing anaerobic populations, derived from anaerobic microbial habitats, said preculture being carried out under anaerobic conditions on a buffered nutrient medium containing glycerol as the sole carbon source, (b) isolating the active microbial precultures capable of fermenting glycerol, (c) enriching said precultures by discontinuous fermentation in an anaerobic reactor, on a nutrient medium based on glycerol as substrate and at controlled pH, (d) isolating the products having bacterial activity and capable of converting glycerol into 1,3-propanediol. Dwg.0/4
Derwent Class: A41; B05; B07; D13; D16; D18; E17
International Patent Class (Main): C12P-007/18; C12P-021/00
International Patent Class (Additional): C12N-001/32; C12P-021/00; C12R-001-145; C12P-007/18; C12R-001-01

6/7/21DIALOG(R)File 351:DERWENT WPI(c)1998 Derwent Info Ltd. All rts. reserv.
008799965 WPI Acc No: 91-303977/199142
Anaerobic microbial conversion of substrate to metabolite - is in airlift reactor with passage of inert gas
Patent Assignee: GES BIOTECHNOL GBF (GBFB); HENKEL KGAA (HENK)
Inventor: CARDUCK F J; DECKWER W D; GUNZEL B; KRETSCHMAN J; YONSEL S
Number of Countries: 015 Number of Patents: 002
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
DE 4010523 A 19911010 DE 4010523 A 19900402 199142 B
WO 9115590 A 19911017 199144
Priority Applications (No Type Date): DE 4010523 A 19900402
Cited Patents: DE 3039874; DE 3508274; EP 31258
Patent Details:
Patent Kind Lan Pg Filing Notes Application Patent
WO 9115590 A
Designated States (National): JP US
Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LU NL SE
Abstract (Basic): DE 4010523 A
In the microbial conversion of a substrate to a metabolite under anaerobic conditions in a fermenter, (a) the fermenter is a bubble-tube reactor with no mechanically moving inserts, and (b) a gas free from O2 is pressed into the lower region of the reactor during the fermentation to convey the fermentation feed. O2-free gases are the fermentation gases taken off at the head of the reactor, and/or inert gases, e.g. N2, CO2 or Ar. Rate of gas feed is 0.001-0.2 (0.03-0.07) vvm, fed centrally (pref. axially) to the bottom of the tower reactor through a pipe or a gasification ring. Reactor pref. has a ratio of height:dia. of 5:20-10, and may have static inserts promoting mixing, esp. recycling loops, which are central or on the walls and act as sepn. wall. Prods. and/or recycled culture medium is sprayed onto the foam, through a nozzle in the upper part of the reactor, to control foam. Microorganism is pref. Clostridium butyricum.
USE/ADVANTAGE - Useful for conversion of glycerol to propane 1,3-diol, using anaerobic micro-organisms. Foaming is low, (almost) without use of an anti-foam. (4pp Dwg.No.0/0)
Derwent Class: D16; E17
International Patent Class (Additional): C07C-031/20; C12M-001/04; C12N-001/20; C12P-001/00; C12P-007/18; C12R-001/14

6/7/24DIALOG(R)File 351:DERWENT WPI(c)1998 Derwent Info Ltd. All rts. reserv.
008299775 WPI Acc No: 90-186776/199025
Microbiological prepn. of 1,3-propane-diol - from glycerol and a sugar hydrogen-donor, under controlled addn. conditions
Patent Assignee: UNILEVER NV (UNIL); UNILEVER PLC (UNIL); UNILEVER PATENT HOLDINGS BV (UNIL)
Inventor: AVERHOFF B; GOTTSCHALK G
Number of Countries: 015 Number of Patents: 006
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
EP 373230 A 19900620 EP 88120718 A 19881212 199025 B
JP 2257885 A 19901018 JP 893212[illegible]891211 199048
JP 92069997 B 19921109 JP 893212[illegible]9891211 C12P-007/18 199249
US 5164309 A 19921117 US 89448137 A 19891212 C12P-007/18 199249
EP 373230 B1 19930217 EP 88120718 A 19881212 C12P-007/18 199307
DE 3878564 G 19930325 DE 3878564 A 19881212 C12P-007/18 199313 EP 88120718 A 19881212
Priority Applications (No Type Date): EP 88120718 A 19881212
Cited Patents: 6.Jnl.Ref; DE 3336051
Patent Details:
Patent Kind Lan Pg Filing Notes Application Patent
EP 373230 A
Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE
JP 92069997 B 7 Based on JP 2257885
US 5164309 A 7
EP 373230 B1 E 19
Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE
DE 3878564 G Based on EP 373230
Abstract (Basic): EP 373230 A
1,3-Propanediol (I) is prepd. microbiologically from glycerol (II) and an H-donor (III) as follows: (a) abiomass is formed from a growth phase from the selected bacterial strain (IV) accompanied by feeding with (II) and (if necessary) excluding (III) until a stationary growth phase; and (b) more (II) and (III) matched to thebiomass are added to the stationary cell suspension formed; accompanied by increased (I) formation.
ADVANTAGE - The simple, economic, rapid and continuous method affords 1,3-propanediol from glycerol in high yield without the formation of environmentally undesirable by-prods.. Dwg.0/4
Abstract (Equivalent): EP 373230 B
Process for the microbiological preparation of 1,3-propane diol from glycerol in growth media of suitable bacterial strains, accompanied by the addition of a cosubstrate in the form of an H-donor and separation of the 1,3-propanediol formed, characterised in that (a) a biomass is formed by culturing the selected bacterial strain in the growth phase in a growth medium containing glycerol, but with the substantial exclusion of any H-donor; (b) the bacterial cells are transferred to a stationary phase and biotransformation is effected by adding fruther glycerol and an H-donor matched to the biomass, accompanied by increased 1,3-propane diol formation, this being the main stage of its preparation.
Abstract (Equivalent): US 5164309 A
1,3-Propanediol is prepd. by cultivating a bacterial strain in a glycerol-contg. growth medium and isolating the prod. formed. Process comprises (a) forming a biomass by culturing strain of genus Citrobacter in the medium with exclusion of any H-donor; (b) permitting cells to reach a stationary cell phase; (c) adding additional glycerol and sugar as H-donor to the biomass, while keeping cells in stationary phase; then (d) isolating the prod..
ADVANTAGE - High yields are obtd. in continuous or batchwise process with small amt. of unobjectionable by-prods..
(Dwg.0/4)
Derwent Class: D16; E17
International Patent Class (Main): C12P-007/18
International Patent Class (Additional): C12R-001/01; C12P-007/18; C12R-001-01

6/7/25DIALOG(R)File 351:DERWENT WPI(c)1998 Derwent Info Ltd. All rts. reserv.
008213719
WPI Acc No: 90-100720/199014
1,3-Propane diol prodn. by fermentation of aq. glycerine soln. - with selected microorganism, then removal of biomass and distn. of prod.
Patent Assignee: GES BIOTECH FORCHUNG (GBFG); GES BIOTECH FORSCH GMBH (GBFB); HENKEL KGAA (HENK); GBF GES BIOTECH FORSCHUNG GMBH (GBFB)
Inventor: BIEBL H; CARDUCK F J; DECKWER P; KRETSCHMAN J; TAG C; CARDUCK F; DECKWER W; KRETSCHMANN J
Number of Countries: 012 Number of Patents: 004
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
EP 361082 A 19900404 EP 89115555 A 19890823 199014 B
DK 8904231 A 19900302 199022
DE 3924423 A 19910131 DE 3924423 A 19890724 199106
US 5254467 A 19931019 US 89402209 A 19890901 C12P-007/04 199343 US 91691648 A 19910425
Priority Applications (No Type Date): DE 3924423 A 19890724; DE 3829618 A 19880901
Cited Patents: 5.Jnl.Ref; A3...9138; No-SR.Pub
Patent Details:
Patent Kind Lan Pg Filing Notes Application Patent
EP 361082 A G 16
Designated States (Regional): AT BE CH DE ES FR GB IT LI NL
US 5254467 A 8 CIP of US 89402209
Abstract (Basic): EP 361082 A
Process for conversion of glycerine into 1,3-propanediol by microorganisms using a strain of microorganisms selected from clostridium, Enterobacterium, Lactobacillus, Citrobacter, Aerobacter and Klebsiella which is capable of converting glycerine into 1,3-propanediol in a space time yield of more than 0.5 g per hr. per l in a 5 wt% glycerine soln. as sole carbon source under standard fermentation conditions, comprises using the chosen microorganism for conversion of a 5-20 wt%., (10-15 wt%) soln. of glycerine as sole carbon source under anaerobic conditions while aintaining a constantpH, and after extensive conversion of the glycerine, sepg. obtd. biomass and working up the prod. mixt. by distn.
USE/ADVANTAGE - Used for technical scale use, esp. for prodn. Of 1,3-propanediol from glycerine waters obtd. from the industrial processing of triglycerides, esp. glycerine solns. from the saponification and/or transesterification of fats without post-treatment of the glycerine-water phase. 0/0
Abstract (Equivalent): US 5254467 A
Transformation of glycerol into 1,3-propanediol by microorganisms comprises fermenting, under standard anaerobic fermentation conditions and constant pH, a strain selected from clostridium butyrium SH1 (DSM 5431) and clostridium butyrium AK1 (DSM 5430) and mutants in a medium comprising aq. glycerol soln. contg. 5-20 wt.% glycerol to produce a biomass and 1,3-propanediol soln, in a vol./time yield to more tha 2.2g.hr-IE-1.a, and sepg. 1,3-propanediol from the biomass. The glycerol soln. is a triglyceride processing stream from the saponification of fats having a low lauric acid content. The soln. pref. comprises 10-15 wt.% glycerol, the pH ismaintained at 6.5-8 and the temp. is pref. 27-40 deg. C. The inoculum is pref. 5-20 vol.%.
USE/ADVANTAGE - The fermentation is easy to handle on an industrial scale and is capable of converting high concns. of glycerol into propanediol under standard fermentation conditions with a vol./time yield of more than 0.5 g hr-IE-1 with the experted catadolic repression which is normally encountered with media accumulating high propanediol concns. Dwg.0/0
Derwent Class: D16; E17
International Patent Class (Main): C12P-007/04
International Patent Class (Additional): C12P-007/18; C12R-001/145

6/7/26DIALOG(R)File 351:DERWENT WPI(c)1998 Derwent Info Ltd. All rts. reserv.

008197141
WPI Acc No: 90-084142/199012
Conversion of glycerol to propane 1,3-diol - by fermentation using glycerol as sole source of carbon
Patent Assignee: GBF GES BIOTECHN FORSCH (GBFB); HENKEL KGAA (HENK); GBF GES BIOTECH FORSCHUNG GMBH (GBFB)
Inventor: CARDUCK E J; DECKWER W D; KRETSCHMAN J; TAG C; BIEBL H; CARDUCK F ; DECKWER W; KRETSCHMANN J
Number of Countries: 003 Number of Patents: 003
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
DE 3829618 A 19900315 DE 3829618 A 19880901 199012 B
JP 3065192 A 19910320 JP 89228160 A 19890901 199118
US 5254467 A 19931019 US 89402209 A 19890901 C12P-007/04 199343 US 91691648 A 19910425
Priority Applications (No Type Date): DE 3829618 A 19880901; DE 3924423 A 19890724
Patent Details:
Patent Kind Lan Pg Filing Notes Application Patent
DE 3829618 A 7
US 5254467 A 8 CIP of US 89402209
Abstract (Basic): DE 3829618 A
Glycerol is converted to 13+propane diol by using a strain of Clostridium, Enterobacterium, Lactobacillus, Bacillus, Citrobacter, Aerobacter, or Klebsiella, which, under standard fermentation conditions, coverts a 5% glycerol soln. as sole C source to 1,3-propane diol at a space-time yield of more than 0.5 g/h/l. These are used for the technical conversion of 5-20% glycerol solns., as sole C source, under anaerobic conditions and at constant pH. After consumption of the glycerol, the biomass is sepd., and the prod. mixt. is processed by distn.
USE/ADVANTAGE - Esp. that obtd. in processing triglycerides (claimed). Other useful prods. may be obtd. in addn. to propane diol, e.g. 2,3-butane diol, ethanol, acetoin, acetic and/or lactic-acid. Glycerol solns. of concn. up to 20 wt.% can be used. The solns. need not be pure. 0/0
Abstract (Equivalent): US 5254467 A
Transformation of glycerol into 1,3-propanediol by microorganisms comprises fermenting, under standard anaerobic fermentation conditions and constant pH, a strain selected from clostridium butyrium SH1 (DSM 5431) and clostridium butyrium AK1 (DSM 5430) and mutants in a medium comprising aq. glycerol soln. contg. 5-20 wt.% glycerol to produce a biomass and 1,3-propanediol soln, in a vol./time yield to more tha 2.2g.hr-IE-1.a, and sepg. 1,3-propanediol from the biomass. The glycerol soln. is a triglyceride processing stream from the saponification of fats having a low lauric acid content. The soln. pref. comprises 10-15 wt.% glycerol, the pH is maintained at 6.5-8 and the temp. is pref. 27-40 deg. C. The inoculum is pref. 5-20 vol.%.
USE/ADVANTAGE - The fermentation is easy to handle on an industrial scale and is capable of converting high concns. of glycerol into propanediol under standard fermentation conditions with a vol./time yield of more than 0.5 g hr-IE-1 with the experted catadolic repression which is normally encountered with media accumulating high propanediol concns. Dwg.0/0
Derwent Class: D16; E17
International Patent Class (Main): C12P-007/04
International Patent Class (Additional): C07C-031/20; C12P-007/18; C12R-001/145

10/TI/1DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Fermentative prodn. of 1,3-propane-diol useful for polymer prodn. - from carbon substrates using mixed culture of glycerol-producing and diol-producing organisms

10/TI/2DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Conversion of glycerol to propane 1,3-diol - by fermentation using glycerol as sole source of carbon

12/TI/1 DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Immersion sterilisation using an organic chemical sterilant - used for immersion sterilisation of medical and dental instruments and is effective against microorganisms including bacterial spores.

12/TI/2DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Composition used as industrial antifungal and antiseptic agent - contains 2-thio-cyano-pyridine-1 oxide and e.g. 2,2,dibromo-2-nitro-ethanol

12/TI/3DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
New (S)-1-Phenyl- 1, 3- propane- diol-producing enzyme and its prepn. - comprises culturing Hansenula genus in culture medium and sepg. enzyme, used in prepn. of pharmaceuticals

12/TI/4DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Industrial microbicide for sterilisation - contains 2,2-dibromo-2-nitro-ethanol, 2-bromo-2-nitro- 1, 3- propane- diol and methylene-bis-thiocyanate

12/TI/5DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Polyester prepn. for industrially utilisable copolymer selective and easy mfr. - bypreculturing poly-3-hydroxy butyrate for Pseudomonas, and post culturing for mfg. polyester and accumulating in cells

12/TI/6DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Additive for toilet cleaner used on passenger train - contains chlorhexidine gluconate, 2-bromo- 2-nitro 1, 3-propane- diol, sodium nitrite, glyoxal, microorganism culture mixt., etc

12/TI/7DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Crude garbage-deodorising liq - comprises liq aldehyde, 2-bromo-2-nitro- 1, 3- propane- diol, deodorisers, supernatant from centrifuged culture soln of microorganism.

12/TI/8DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
S)-1-phenyl- 1, 3- propanediol prepn. having high optical purity - using enantiomer mixt. of 1-phenyl- 1, 3-propane diol and microorganism e.g. Bacillus, Brevibacterium, Pseudomonas etc.

12/TI/9DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Additive for flush water of toilet installed in a train - comprises liq. aldehyde, 2-bromo-2-nitro- 1, 3- propane diol and supernatant aq. culture medium of microorganism e.g. Bacillus and deodorising materials preventing malodours

12/TI/10DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Non-aq. hypo compatible biodegradable cold chemical sterilant - comprises monohydric alcohol, polyhydric alcohol, dialdehyde and a cationic surface active agent

12/TI/11DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Prepn. of (R)- 1, 3- propane diol - by introducing microbe e.g. Candida sp. into culture to reduce 1-phenyl propane 3-ol-1-one

12/TI/12DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
New carbocyclic derivs. exhibiting biocidal agents - e.g. 2-(((4-(2-(methoxy)ethoxy) 1-(anthracemyl)methyl) amino)-2-methyl- 1,3-propandiol is esp. useful as antitumour agent

12/TI/13DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Agent for biologically treating raw sewage in aeroplane - contains conc. soln. of incubated bacteria, diol cpd., dye, perfume and magnesium sulphate, used in water-circulating type toilet

12/TI/14DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Prepn. of optically active 3-phenyl-3-propanol used as pharmaceutical intermediates - by contacting culture liquor, microbe of treated prod. of microbe body with racemic 3-phenyl-3-propanol to increase ratio of S-isomer

12/TI/15DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Prepn. of optically active 1-phenyl- 1, 3-propanediol (deriv.) - by hydrolysis of corresp. ester enantiomeric mixt. using hydrolase enzyme e.g. Pseudomonas lipase, giving cpd. useful as drug intermediates

12/TI/16DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Deodorising preservative bead agent, having durable effect - uses beads made by dropping microorganism and nutrients onto aq. soln. of potassium chloride or calcium chloride, with preservatives

12/TI/17DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Aq. soln. for disinfecting soft contact lenses - comprises 2-amino-2-hydroxymethyl- 1, 3- propane- diol and EDTA and is effective against Serratia marcescens and Candida albicans

12/TI/18DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Optical active 1-phenyl- 1, 3-propanediol(s) - obtd. by contacting racemic mixt. with culture liq. and microbe body to increase proportion of S- cpd

12/TI/19DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Prepn. of optically active 3-phenyl-1,3-propan-diol - by treating 3-phenyl 1,3-propan-diolenantiomer with microorganism e.g. belonging to genus Candida

12/TI/20DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Optically active 1-phenyl- 1, 3- propane-diol prepn. - by culture of suitable microorganism in presence of racemic diol, used as drug intermediate

12/TI/21DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Prepn. of optically active 1,3-butanediol - using microbe able to digest asymmetricallyenantiomer mixt. in presence of alcohol or ketol

12/TI/22DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Antimicrobial compsn. for industrial application - comprises 4,5-dichloro-N-N-octylisothiazolin-3-one and bromonitroalcohol(s)

12/TI/23DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Candida rugosa lipase and isoenzyme(s) - used for stereoselectively hydrolysing ester(s), transesterifying ester(s) or acid(s), or esterifying acid(s) or alcohol(s

12/TI/24DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Biocidal additives for metal-working fluids - contg. 2-amino-1-nitrophenyl-13-propanediol and tetramethyl-thiuram disulphide

12/TI/25DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Compsn. contg. 2-((6-chrysenylmethyl) amino-2-methyl- 1, 3-propanediol - for oral or parenteral use esp. as an anti-tumour agent

12/TI/26DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Pharmaceutical formulation e.g. for treating tumours - contains N-alkylated phenanthrenylmethyl amine cpd. e.g. 2-methyl 2-((3-phenanthrenylmethyl) amino) 1, 3- propanediol

12/TI/27DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
New chrysene derivs. - are active against viruses, fungi, protozoa, bacteria, helminths and tumour cells

12/TI/28DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
2-Bromo-2-bromomethyl glutaronitrile in synergistic mixts. - for control of microbial growth

12/TI/29DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Synergistic combination of prochloraz and bronopol - in compsn. for control of bacteria and fungi which attack wood and crops

12/TI/30DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Keto-alkyl-phospholipid(s) - are antitumour agents, platelet activating factor antagonists and antifungal agents

12/TI/31DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Antibiotic for water system e.g. paper mill - contains 2-bromo-2-nitro 1 , 3- propane- diol and 1,4-bis (bromoacetoxy)-2-butene

12/TI/32DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
D(-)-beta-hydroxyisobutyric acid prepn. - by reacting isobutyl alcohol with a specific microorganism

12/TI/33DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Antimicrobial 1,3-diformyloxy-2-bromo-2-nitro-propane - prepd. by esterification of bromonitropropane with formic acid mixed anhydride using basic catalyst

12/TI/34DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Microbial mycelium prodn. - by culturing microorganism of Bacillus genus able to digest ethanol and 2,3-butane diol

12/TI/35DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Phenyl-trifluoroacetamido-propanediol derivs. - for use as broad spectrum antibacterial agents

12/TI/36DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.

Mono-hydroxy-carboxylic acid prepn. - by culture of genus Bacillus in me[redacted]ntg. (1,2)- or (1, 3)- propane diol

12/TI/37 DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Fluorthiamphenicol and its glycyl ester - with broad-spectrum antibacterial activity

12/TI/38DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Liquid enzyme product - contg protease or amylase in selected liquid carrier

12/TI/39DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
Cinnamoylphenyl-1 3-propanediols

12/TI/40DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
1-p-acetylphenyl-2-2 2-dichloroacetamido-1 3-propane diols antibiotics - s af 65 4887 provided

12/TI/41 DIALOG(R)File 351:(c)1998 Derwent Info Ltd. All rts. reserv.
N-trichloromethylthio-derivs of antibiotics

12/7/11 DIALOG(R)File 351:DERWENT WPI (c)1998 Derwent Info Ltd. All rts. reserv.
009614795 WPI Acc No: 93-308343/199339
Prepn. of (R)- 1, 3- propane diol - by introducing microbe e.g. Candida sp. into culture to reduce 1-phenyl propane 3-ol-1-onePatent Assignee: AJINOMOTO KK (AJIN)
Number of Countries: 001 Number of Patents: 001
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
JP 5219984 A 19930831 JP 9222466 A 19920207 C12P-041/00 199339 B
Priority Applications (No Type Date): JP 9222466 A 19920207
Patent Details:
Patent Kind Lan Pg Filing Notes Application Patent
JP 5219984 A 4
Abstract (Basic): JP 5219984 A
A culture, microbial cells sepd. from the culture or the cell treated substance that can asymmetrically reduce 1-phenyl-propane-3-ol-1-one to (R)-1-phenyl-1 ,3 -propanediol , is reacted on 1-phenylpropane-3-ol-1-one, then produced (R)-1-phenyl-1 ,3 -propane diol is collected. More specifically, the microbe is Candida sp., Trichosporon sp., or Aspergilus sp.
USE/ADVANTAGE - High optical purity (R)-1-phenyl-1 ,3 -propane diol can be prepd in high yield.
In an example, each 3 ml of medium (glucose 2.0%, (NH4)2SO4 0.5%, K2HPO4 0.3%, KH2PO4 0.1%, MgSO4.7H2O 0.05%, FeSO4.7H2O 0.001%, MnSO4.4H2O 0.001%, yeast extract 1.0%, polypeptone 1.0%; pH 7.0) was charged into a test tube. After heat sterilisation, one loop ofmicrobial cells were inoculated, and shaking cultured at 30degC for 24 - 48 hours. To the culturing soln., 3 mq 1-phehnyl-1-propane-3-ol-1-one and 15 mg glucose were added, and cultured at 30degC for more 24 hours. After the reaction, the soln. was diluted with ethanol, and centrifuged. The supernatant was analysed. Yield (%), absolute configuration and optical purity (% e.e) were 6.0, R, 86 (Trichosporon fermentans IFO 1199) Dwg.0/0
Derwent Class: B05; D16; E14
International Patent Class (Main): C12P-041/00
International Patent Class (Additional): C12P-041/00; C12R-001-72; C12R-001-69; C12R-001-645

12/7/21DIALOG(R)File 351:DERWENT WPI(c)1998 Derwent Info Ltd. All rts. reserv.
008847126 WPI Acc No: 91-351143/199148
Prepn. of optically active 1,3-butanediol - using microbe able to digest asymmetricallyenantiomer mixt. in presence of alcohol or ketol
Patent Assignee: DAICEL CHEM IND LTD (DAIL)
Number of Countries: 001 Number of Patents: 001
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
JP 3236795 A 19911022 JP 9034249 A 19900215 199148 B
Priority Applications (No Type Date): JP 9034249 A 19900215
Abstract (Basic): JP 3236795 A
In the prepn. of optically active 1,3-butanediol (I), a microbe able to digest asymmetrically anenantiomer mixt. of (I) is reacted with the mixt. to collect the remaining optically active (I). A microbe is used having an increased ability of digesting asymmetrically the mixt. in the presence of an alcohol or a ketol, the alcohol being pref. ethanol, ethylene glycol, 1-propanol, 2-propanol,trimethylene glycol , 1,3-butanediol, 1,4-butanediol, 3-methyl-1,3-butanediol, or 1,5-pentanediol and the ketol being pref. 4-hydroxy-2-butanone or dihydroxyacetone.
USE/ADVANTAGE - The method gives a high reaction rate to improve productivity.
In an example, Candida parapsilosis IFO 1396 is inoculated in to 25 ml of a medium contg. 2% glucose and 1% yeast extract and cultured at 30 deg. C for 24 hrs.. The bacteria body is centrifuged and washed with physiological saline soln. to give five bacteria body. 25ml of 0.1 mol K phosphate buffer is added and 0.125 g of an alcohol or a ketol is added to the suspension and the mixt. is shaken at 30 C for 5 hrs. and centrifuged and the bacteria body is washed with physiological saline soln.. 25 ml distilled water is added to it and 0.75 g racemic (I) and 0.125 g CaCO3 are added and reacted at 30 deg. C for 24 hrs.. Then, the mixt. is centrifuged and the supernatant is satd. with NaCl and extracted with 50 ml ethyl acetate. The extract is dried on anhydrous Na2SO4 and evacuated in vacuo to give a syrup. It is acetylated with acetyl chloride and dissolved in hexane and the optical purity is determined by HPLC. (4pp Dwg.No.0/0)ne.
Derwent Class: B05; D16; E17
International Patent Class (Additional): C12P-041/00; C12R-001/72

12/7/23DIALOG(R)File 351:DERWENT WPI(c)1998 Derwent Info Ltd. All rts. reserv.
008503132 WPI Acc No: 91-007216/199101
Candida rugosa lipase and isoenzyme(s) - used for stereoselectively hydrolysing ester(s), transesterifying ester(s) or acid(s), or esterifying acid(s) or alcohol(s
Patent Assignee: RHONE POULENC INC (RHON); RHONE POULENC RORER INT HOLDIN (RHON); RHONE-POULENC INC (RHON)
Inventor: BARTON M J; CALTON G J; COBBS C S; GOSWAMI A; HAMMAN J P; MALICK A P; PENG L
Number of Countries: 023 Number of Patents: 010
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
WO 9015146 A 19901213 199101 B
EP 407033 A 19910109 EP 90306098 A 19900605 199102
PT 94253 A 19910208 199109
AU 9058242 A 19910107 199115
ZA 9004121 A 19910529 ZA 904121 A 19900529 199125
US 5108916 A 19920428 US 89361049 A 19890605 199220
HU 61050 T 19921130 HU 904853 A 19900601 C12P-007/64 199302 WO 90US2990 A 19900601
JP 5500452 W 19930204 JP 90508806 A 19900601 C12P-041/00 199310 WO 90US2990 A 19900601
AU 637113 B 19930520 AU 905824[redacted]00601 C12N-009/20 199327
IL 94545 A 19940530 IL 94545 A 19[redacted]9 C12N-009/18 199424
Priority Applications (No Type Date): US 89361049 A 19890605
Cited Patents: NoSR.Pub; 2.Jnl.Ref; JP 64060392; US 4472503; US 4601987; US 4650755; US 4818695; US 4873194; US 4897357; US 4923810
Patent Details:
Patent Kind Lan Pg Filing Notes Application Patent
WO 9015146 A
Designated States (National): AU CA HU JP KR SU
EP 407033 A
Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE
US 5108916 A 37
HU 61050 T Based on WO 9015146
JP 5500452 W 40 Based on WO 9015146
AU 637113 B AU 9058242
Based on WO 9015146
Abstract (Basic): WO 9015146 A
Process for stereoselectively hydrolysing racemic mixts. of esters of 2-susbtd. acids other than 2-halo propionic acids, at high enantiomeric excess, into acids comprises contacting the racemic mixt. with a lipase of Candida rugosa (CR) in the presence of an organic solvent, e.g. toluene; the lipase may be immobilised using a polyaziridine opt. in the presence of an organic acid, e.g. stearic acid; pref. the process is carried out in the presence of a reducing agent, e.g. sodium hydrosulphite, sodium sulphite or a borohydride. Pref. the enzymes of the lipase of CR are purified by immobilisation, by isoelectric focussing or using ion exchange chromatography and sepg. the resulting lipase isoenzymes with an appropriate elution scheme; thechromatography support may be e.g. a sulphopropyl derivatised polymer of N-acryloyl amin2-amino 2-hydroxy-1 ,3 -propanediol , a sulphopropyl derivatised cross linked dextran with methylene bisacrylamide polymer or a sulphopropyl derivatised agarose; a lipase isoenzyme having an N terminal amino acid sequence: Ala-Pro-Thr-Ala--U-Leu-Ala Asn-Gly-V-Thr-Ile-Thr-Gly Leu-Asn-Ala-Ile-Ile-Asn Gluw-Ala-Phe-Leu-Gly-IleWW-X-Ala-Glu-Pro Proe-Y-Z-Asn-P (U, V, W, X, Y, Z are amino acids and P is the remaining portion of the peptide; is specifically claimed.
USE/ADVANTAGE - The processes are used to improve enzymatic hydrolysis, esterification and transesterification procedures. They can be used for increasing the rate or stereoselectivity of a lipase medicated reaction. The methods can be used for purifying, sepg. and increasing the stability of the enzymes or the 2 new isoenzymes isolated. The processes are used esp. for the stereoselective prodn. of S-ketoprofen, S-ibuprofen, S-fenoprofen, S-2-phenylpropionic acid and S-indoprofen. (141pp Dwg.No.0/0
Abstract (Equivalent): US 5108916 A
Process for the stereospecific hydrolysis of esters of 2-substd. alkanoic acids (excluding 2-halopropionic esters), transesterification of esters or acids, and/or the esterification of acids or alcohols comprises treatment of the racemic mixt., ester, acid or alcohol with an immobilised isoenzyme of lipase MY or AY (obtd. from Candida rugosa) in an organic solvent.
ADVANTAGE - The process is conducted under very mild conditions but gives high yields (e.g. 94%) of enantiomeric prod
Derwent Class: B04; B05; D16; E19
International Patent Class (Main): C12N-009/18; C12N-009/20; C12P-007/64; C12P-041/00
International Patent Class (Additional): C12N-011/08; C12N-011/18; C12P-007/12; C12P-007/62

16jun98 08:28:02 User208600 Session D1155.3
SYSTEM:OS - DIALOG OneSearch
File 155:MEDLINE(R) 1966-1998/Aug W1 (c) format only 1998 Dialog Corporation
File 5:BIOSIS PREVIEWS(R) 1969-1998/JUN W2 (c) 1998 BIOSIS

Set Items Description
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S1 0 PN=3829618
S2 0 IN=KRETSCHMANN, J?
S3 0 AU=KRETCHSMANN,?
S4 0 PN= DE 3829618
S5 0 CN=504-63-2
S6 0 CN=R01300-P
S7 185850 ASPERGILLUS OR SACCHAROMYCES OR ZYGOSACCHAROMYCES OR PICHIA OR KLUYVEROMYCES OR CANDIDA OR HANSENULA OR DEBARYOMYCES OR MUCOR
S8 282056 TORULOPSIS OR METHYLOBACTER OR SALMONELLA OR BACILLUS OR STREPTOMYCES OR PSEUDOMONAS
S9 456125 S7 OR S8
S10 0 S6 AND S9
S11 620 TRIMETHYLENE(W)GLYCOL OR 1(W)3(W)(PROPANEDIOL OR PROPANE (N)DIOL)
S12 28 S11 AND S9 NOT S10
S13 28 ID (sorted in duplicate order)

13/6/1 (Item 1 from file: 155) 09425271 98100451
Carcinogenic activity of the flame retardant, 2,2-bis(bromomethyl)- 1, 3- propanediol in rodents, and comparison with the carcinogenicity of otherNTP brominated chemicals.

13/6/2 (Item 2 from file: 5)14101291 BIOSIS Number: 01101291
Carcinogenic activity of the flame retardant, 2,2-bis(bromomethyl)- 1, 3- propanediol in rodents, and comparison with the carcinogenicity of otherNTP brominated chemicals Print Number: Biological Abstracts Vol. 105 Iss. 005 Ref. 073566

13/6/3 (Item 3 from file: 155)03200243 75109256
Diol lipids of rat liver. Quantitation and structural characteristics ofneutral lipids and phospholipids derived from ethanediol, propanediols, andbutanediols.

13/6/4 (Item 4 from file: 155)05274092 87223002
Effect of buffers on testing of Candida species susceptibility toflucytosine.

13/6/5 (Item 5 from file: 5)5880069 BIOSIS Number: 84012634
EFFECT OF BUFFERS ON TESTING OF CANDIDA SPECIES SUSCEPTIBILITY TOFLUCYTOSINE

13/6/6 (Item 6 from file: 5)4854284 BIOSIS Number: 79096599
EFFECT OF 1-P NITROPHENYL-2-AMINO- 1 3- PROPANEDIOL AND [redacted]HLORETHYLPHOSPHONIC-ACID DERIVATIVES ON THE GROWTH OF ENTEROBACTERIA

13/6/7 (Item 7 from file: 5)9533630 BIOSIS Number: 94038630
ENANTIOSELECTIVE TRANSESTERIFICATION OF 2 METHYL- 1 3- PROPANEDIOLDERIVATIVES CATALYZED BY PSEUDOMONAS-FLUORESCENS LIPASE IN AN ORGANICSOLVENT

13/6/8 (Item 8 from file: 5)11126908 BIOSIS Number: 97326908
Enzymatic esterification of diols in reverse micellar media Print Number: Biological Abstracts Vol. 098 Iss. 003 Ref. 033420

13/6/9 (Item 9 from file: 5)8675663 BIOSIS Number: 92140663
ESTERIFICATION OF GLYCOSIDES WITH GLYCEROL AND TRIMETHYLOPROPANE MOIETIESBY CANDIDA-CYLINDRACEA LIPASE

13/6/10 (Item 10 from file: 155)03768199 81134198
Esterification of terminal phosphate groups in nucleic acids withsorbitol and its application to the isolation of terminal polynucleotidefragments.

13/6/11 (Item 11 from file: 155)07565077 93300800
Formation of 1,3-cyclic glycerophosphate by the action of phospholipase Con phosphatidylglycerol.

13/6/12 (Item 12 from file: 5)10468669 BIOSIS Number: 96068669
FORMATION OF 1 3 CYCLIC GLYCEROPHOSPHATE BY THE ACTION OF PHOSPHOLIPASE CON PHOSPHATIDYLGLYCEROL

13/6/13 (Item 13 from file: 155)04870897 86059296
Inhibition of glucoamylases from a Rhizopus sp. and Aspergillus saitoiby aminoalcohol derivatives.

13/6/14 (Item 14 from file: 5)5240637 BIOSIS Number: 81007944
INHIBITION OF GLUCOAMYLASES FROM A RHIZOPUS-SP AND ASPERGILLUS-SAITOIBY AMINO ALCOHOL DERIVATIVES

13/6/15 (Item 15 from file: 155)04677524 85184658
Isolation and characterization of Streptomyces venezuelae mutantsblocked in chloramphenicol biosynthesis.

13/6/16 (Item 16 from file: 5)4856415 BIOSIS Number: 79098730
ISOLATION AND CHARACTERIZATION OF STREPTOMYCES-VENEZUELAE MUTANTSBLOCKED IN CHLORAMPHENICOL BIOSYNTHESIS

13/6/17 (Item 17 from file: 5)7759118 BIOSIS Number: 90127118
LIPASE-CATALYZED RESOLUTION OF RS-2 METHYL-4-PHENYLSELENO-1-BUTANOLSYNTHESIS OF ENANTIOMERICALLY PURE 2 METHYL- 1 3- PROPANEDIOLDERIVATIVES

13/6/18 (Item 18 from file: 5)13751548 BIOSIS Number: 99751548
Lipase catalysed synthesis of propanediol monoesters in biphasic aqueousmedium Print Number: Biological Abstracts Vol. 104 Iss. 009 Ref. 126329

13/6/19 (Item 19 from file: 5)10095781 BIOSIS Number: 95095781
MARKED DEPENDENCE OF ENZYME PROCHIRAL SELECTIVITY ON THE SOLVENT

13/6/20 (Item 20 from file: 155)09443094 98157761
Metabolic engineering of propanediol pathways.

13/6/21 (Item 21 from file: 5)14134511 BIOSIS Number: 01134511
Metabolic engineering of propanediol pathways Print Number: Biological Abstracts Vol. 105 Iss. 007 Ref. 093385

13/6/22 (Item 22 from file: 5)8615325 BIOSIS Number: 92080325
PURIFICATION AND SOME PROPERTIES OF THE ENZYME CATALYZING THEC-GAMMA-ELIMINATION OF A DIARYLPROPANE-TYPE LIGNIN MODEL FROM PSEUDOMONAS-PAUCIMOBILIS TMY 1009

13/6/23 (Item 23 from file: 5)5422009 BIOSIS Number: 82066812
REGULATION OF FORMALDEHYDE OXIDATION BY THE METHANOL DEHYDROGENASE MODIFIER PROTEINS OF METHYLOPHILUS-METHYLOTROPHUS AND PSEUDOMONAS AM-1

13/6/24 (Item 24 from file: 5) 13317312 BIOSIS Number: 99317312
Selective monoacetylation of diol compounds by Aspergillus niger lipase Print Number: Biological Abstracts Vol. 103 Iss. 002 Ref. 020426

13/6/25 (Item 25 from file: 5)13317084 BIOSIS Number: 99317084
Solvent polarity influences product selectivity oflipase-mediated esterification reactions in microaqueous media Print Number: Biological Abstracts Vol. 103 Iss. 002 Ref. 020198

13/6/26 (Item 26 from file: 155)02717237 80065688
Synthesis of various kinds of esters by four microbial lipases.

13/6/27 (Item 27 from file: 5) 2999342 BIOSIS Number: 69036749
SYNTHESIS OF VARIOUS KINDS OF ESTERS BY 4 MICROBIAL LIPASES

13/6/28 (Item 28 from file: 5)4838404 BIOSIS Number: 79080719
SYNTHESIS OF ESTER OLIGOMER BY ASPERGILLUS-NIGER LIPASE

13/8/20 (Item 20 from file: 155)DIALOG(R)File 155:(c) format only 1998 Dialog Corporation. Allrts. reserv.
09443094 98157761
Metabolic engineering of propanediol pathways.
Tags: Support, Non-U.S. Gov't; Support, U.S. Gov't, Non-P.H.S.; Support,U.S. Gov't, P.H.S.
Descriptors: *Biotechnology; *Carbohydrates--Metabolism--ME; *GeneticEngineering; *Propylene Glycol--Metabolism--ME; *Propylene Glycols--Metabolism--ME; Escherichia coli--Genetics--GE; Escherichia coli --Metabolism--ME; Fermentation; Klebsiella pneumoniae--Genetics--GE; Klebsiella pneumoniae--MetabolismME
CAS Registry No.: 0 (Carbohydrates); 0 (Propylene Glycols); 504-63-2 (1,3-propanediol); 57-55-6 (Propylene Glycol)

13/8/21 (Item 21 from file: 5)DIALO[redacted]le 5:(c) 1998 BIOSIS. Allrts. reserv.
14134511 BIOSIS Number: 011345[redacted]
Metabolic engineering of propanediol pathways
Print Number: Biological Abstracts Vol. 105 Iss. 007 Ref. 093385
Descriptors/Keywords: LITERATURE REVIEW; KLEBSIELLA PNEUMONIAE;SACCHAROMYCES CEREVISIAE; THERMOANAEROBACTERIUM THERMOSACCHAROLYTICUM; BACTERIA; MICROORGANISM; FUNGUS; BIOTECHNOLOGY; BIOPROCESS ENGINEERING; METABOLISM; FERMENTATION PROCESSES; METABOLIC ENGINEERING; PROPANEDIOL PATHWAYS; PROPANEDIOL; SUGARS; SUGAR CONVERSIONS; ENZYMES; PRODUCT RECOVERY
Concept Codes:
*03502 Genetics and Cytogenetics-General
*10010 Comparative Biochemistry, General
*10050 Biochemical Methods-General
*10060 Biochemical Studies-General
*10064 Biochemical Studies-Proteins, Peptides and Amino Acids
*10068 Biochemical Studies-Carbohydrates
*10506 Biophysics-Molecular Properties and Macromolecules
*10804 Enzymes-Methods
*13002 Metabolism-General Metabolism; Metabolic Pathways
*13003 Metabolism-Energy and Respiratory Metabolism
*13004 Metabolism-Carbohydrates
*29500 Microorganisms, General
*31000 Physiology and Biochemistry of Bacteria
*39007 Food and Industrial Microbiology-Biosynthesis, Bioassay and Fermentation
*51519 Plant Physiology, Biochemistry and Biophysics-MetabolismBiosystematic Codes:
05000 Bacteria-General Unspecified (1992-)
06702 Enterobacteriaceae (1992-)
15100 Ascomycetes
Super Taxa:
Microorganisms; Bacteria; Eubacteria; Plants; Nonvascular Plants; Fungi

16jun98 08:32:18 User208600 Session D1155.4

File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec (c) 1998 Inst for Sci Info

Set Items Description
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S1 0 PN=3829618
S2 0 IN=KRETSCHMANN, J?
S3 0 AU=KRETCHSMANN,?
S4 0 PN= DE 3829618
S5 0 CN=504-63-2
S6 0 CN=R01300-P
S7 25740 ASPERGILLUS OR SACCHAROMYCES OR ZYGOSACCHAROMYCES OR PICHIA OR KLUYVEROMYCES OR CANDIDA OR HANSENULA OR DEBARYOMYCES OR MUCOR
S8 49877 TORULOPSIS OR METHYLOBACTER OR SALMONELLA OR BACILLUS OR STREPTOMYCES OR PSEUDOMONAS
S9 74887 S7 OR S8
S10 0 S6 AND S9
S11 99 TRIMETHYLENE(W)GLYCOL OR 1(W)3(W)(PROPANEDIOL OR PROPANE (N)DIOL)
S12 0 S11 AND S9 NOT S10

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File 34:SciSearch(R) Cited Ref Sci 1990-1998/Jun W1 (c) 1998 Inst for Sci Info

Set Items Description
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S1 0 PN=3829618
S2 0 IN=KRETSCHMANN, J?
S3 0 AU=KRETCHSMANN,?
S4 0 PN= DE 3829618
S5 0 CN=504-63-2
S6 0 CN=R01300-P
S7 67333 ASPERGILLUS OR SACCHAROMYCES OR ZYGOSACCHAROMYCES OR PICHIA OR KLUYVEROMYCES OR CANDIDA OR HANSENULA OR DEBARYOMYCES OR MUCOR
S8 84013 TORULOPSIS OR METHYLOBACTER OR SALMONELLA OR BACILLUS OR STREPTOMYCES OR PSEUDOMONAS
S9 145475 S7 OR S8
S10 0 S6 AND S9
S11 455 TRIMETHYLENE(W)GLYCOL OR 1(W)3(W)(PROPANEDIOL OR PROPANE (N)DIOL)
S12 22 S11 AND S9 NOT S10

12/6/1 06741658 Genuine Article#: ZP187 Number of References: 30
Title: MOCA and some proposed substitutes (Cyanacure, Conacure, Polacure 740M and Ethacure 300) as two-stage skin carcinogens in HRA/Skh hairless mice (ABSTRACT AVAILABLE)

12/6/2 06496811 Genuine Article#: YX215 Number of References: 53

Title: Metabolic engineering of propanediol pathways (ABSTRACT AVAIL

12/6/3 06396179 Genuine Article#: YP699 Number of References: 17
Title: Carcinogenic activity of the flame retardant, 2,2-bis(bromomethyl)- 1, 3- propanediol in rodents, and comparison with the carcinogenicity of other NTP brominated chemicals (ABSTRACT AVAILABLE)

12/6/406137610 Genuine Article#: XX393 Number of References: 34
Title: Glycerol conversion to 1, 3-propanediol by Clostridium pasteurianum: cloning and expression of the gene encoding 1, 3- propanediol dehydrogenase (ABSTRACT AVAILABLE)

12/6/5 06085534 Genuine Article#: XU184 Number of References: 23
Title: Lipase catalysed synthesis of propanediol monoesters in biphasic aqueous medium (ABSTRACT AVAILABLE)

12/6/6 05978839 Genuine Article#: XL855 Number of References: 17
Title: Enantioselectivity of lipase-catalysed transesterification of 2-ethyl- 1, 3- propanediol: Comparison of lipases from bacterial, fungal and animal sources (ABSTRACT AVAILABLE)

12/6/7 05978831 Genuine Article#: XL855 Number of References: 40
Title: Lipase-mediated asymmetric construction of 2-arylpropionic acids: enantiocontrolled syntheses of S-naproxen and S-ibuprofen (ABSTRACT AVAILABLE)

12/6/8 05380292 Genuine Article#: VU832 Number of References: 41
Title: SOLVENT POLARITY INFLUENCES PRODUCT SELECTIVITY OF LIPASE-MEDIATED ESTERIFICATION REACTIONS IN MICROAQUEOUS MEDIA (Abstract Available)

12/6/9 05376612 Genuine Article#: VU413 Number of References: 20
Title: SELECTIVE MONOACETYLATION OF DIOL COMPOUNDS BY ASPERGILLUS-NIGER LIPASE (Abstract Available)

12/6/10 05326299 Genuine Article#: VQ516 Number of References: 27
Title: KINETIC, DYNAMIC, AND PATHWAY STUDIES OF GLYCEROL METABOLISM BY KLEBSIELLA-PNEUMONIAE IN ANAEROBIC CONTINUOUS-CULTURE .1. THE PHENOMENA AND CHARACTERIZATION OF OSCILLATION AND HYSTERESIS (Abstract Available)

12/6/11 05298890 Genuine Article#: VN689 Number of References: 7
Title: SYNTHESIS AND ANTIMICROBIAL ACTIVITY OF 2-ARYLOXY-5,5-DIMETHYL-1,3,2-DIOXAPHOSPHORINANE 2-OXIDES (Abstract Available)

12/6/12 04839864 Genuine Article#: UL527 Number of References: 37
Title: CARBON AND ELECTRON FLOW IN CLOSTRIDIUM-BUTYRICUM GROWN IN CHEMOSTAT CULTURE ON GLYCEROL AND ON GLUCOSE (Abstract Available)

12/6/13 04451556 Genuine Article#: TE008 Number of References: 20
Title: ENANTIOSELECTIVE CHEMOENZYMATIC SYNTHESIS OF THE S-ENANTIOMER OF THE SYSTEMIC FUNGICIDE FENPROPIMORPH (Abstract Available)

12/6/14 03270606 Genuine Article#: NR430 Number of References: 34
Title: ENZYMATIC ESTERIFICATION OF DIOLS IN REVERSE MICELLAR MEDIA (Abstract Available)

12/6/15 02536456 Genuine Article#: LJ825 Number of References: 29
Title: FORMATION OF 1,3-CYCLIC GLYCEROPHOSPHATE BY THE ACTION OF PHOSPHOLIPASE-C ON PHOSPHATIDYLGLYCEROL (Abstract Available)

12/6/16 02483056 Genuine Article#: LE560 Number of References: 23
Title: STUDIES ON THE ENANTIOSELECTIVITY OF THE TRANSESTERIFICATION OF 2-METHYL-1,4-BUTANEDIOL AND ITS DERIVATIVES CATALYZED BY PSEUDOMONAS -FLUORESCENS LIPASE IN ORGANIC-SOLVENTS (Abstract Available)

12/6/17 02197515 Genuine Article#: KJ689 Number of References: 54
Title: MARKED DEPENDENCE OF ENZYME PROCHIRAL SELECTIVITY ON THE SOLVENT (Abstract Available)

12/6/18 01695932 Genuine Article#: HT781 Number of References: 20
Title: ENANTIOSELECTIVE TRANSESTERIFICATION OF 2-METHYL- 1, 3- PROPANEDIOL DERIVATIVES CATALYZED BY PSEUDOMONAS-FLUORESCENS LIPASE IN AN ORGANIC-SOLVENT (Abstract Available)

12/6/19 01198926 Genuine Article#: GD694 Number of References: 20
Title: ESTERIFICATION OF GLYCOSIDES WITH GLYCEROL AND TRIMETHYLOLPROPANE MOIETIES BY CANDIDA-CYLIDRACEA LIPASE (Abstract Available)

12/6/20 00998627 Genuine Article#: FM686 Number of References: 9
Title: ENZYMATIC-SYNTHESIS OF ENANTIOMERICALLY PURE CHIRAL SYNTHONS - LIPASE-CATALYZED RESOLUTION OF (R/S, 4E)-2-METHYL-4-HEXEN-1-OL (Abstract Available)

12/6/21 00915283 Genuine Article#: FF269 Number of References: 14
Title: SYNTHESIS OF CHIRAL 3-SUBSTITUTED GAMMA-LACTONES AND 9-FURANOSYL-ADENINE FROM (R)-2-(2,2-DIETHOXYETHYL)- 1, 3- PROPANEDIOL MONOACETATE PREPARED BY LIPASE-CATALYZED REACTION (Abstract Available)

12/6/22 00204392 Genuine Article#: CX734 Number of References: 29
Title: UTILIZATION OF GLYCEROL AS A HYDROGEN ACCEPTOR BY LACTOBACILLUS-REUTERI - PURIFICATION OF 1, 3- PROPANEDIOL-NAD+ OXIDOREDUCTASE

12/5/4 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci (c) 1998 Inst for Sci Info. All rts. reserv.
06137610 Genuine Article#: XX393 Number of References: 34
Title: Glycerol conversion to 1, 3-propanediol by Clostridium pasteurianum: cloning and expression of the gene encoding 1, 3- propanediol dehydrogenase
Author(s): Luers F; Seyfried M; Daniel R; Gottschalk G (REPRINT)
Corporate Source: UNIV GOTTINGEN,INST MIKROBIOL, GRISEBACHSTR 8/D-37077 GOTTINGEN//GERMANY/ (REPRINT); UNIV GOTTINGEN,INST MIKROBIOL/D-37077 GOTTINGEN//GERMANY/
Journal: FEMS MICROBIOLOGY LETTERS, 1997, V154, N2 (SEP 15), P337-345
ISSN: 0378-1097 Publication date: 19970915
Publisher: ELSEVIER SCIENCE BV [illegible] OX 211, 1000 AE AMSTERDAM, NETHERLANDS
Language: English Document Type: [illegible]LEGeographic Location: GERMANY
Subfile: CC LIFE--Current Contents, Life Sciences Journal Subject Category: MICROBIOLOGY
Abstract: When grown on glycerol as sole carbon and energy source, cell extracts of Clostridium pasteurianum exhibited activities of glycerol dehydrogenase, dihydroxyacetone kinase, glycerol dehydratase and 1 ,3 -propanediol dehydrogenase. The genes encoding the latter two enzymes were cloned by colony hybridization using the dhaT gene of Citrobacter freundii as heterologous DNA probe and expressed in Escherichia coli. The native molecular mass of 1 ,3 -propanediol dehydrogenase (DhaT) is 440 000 Da. The dhaT gene of C. pasteurianum was subcloned and its nucleotide sequence (1158 bp) was determined. The deduced gene product (41 776 Dal revealed high similarity to DhaT of C. freundii (80.5% identity; 89.8% similarity).
Descriptors--Author Keywords: Clostridium pasteurianum ; 1 ,3 - propanediol dehydrogenase ; 1 ,3 -propanediol ; glycerol fermentation ; type III alcoholdehydrogenase ; glycerol dehydratase
Identifiers--KeyWord Plus(R): ESCHERICHIA-COLI; ALCOHOL-DEHYDROGENASE;CITROBACTER-FREUNDII; MOLECULAR CHARACTERIZATION; KLEBSIELLA-PNEUMONIAE; ZYMOMONAS-MOBILIS; SEQUENCE-ANALYSIS; DHA REGULON; PROTEINS; OVEREXPRESSION
Research Fronts: 95-0536 001 (11-BETA-HYDROXYSTEROID DEHYDROGENASE; FETAL ORIGINS OF CORONARY HEART-DISEASE; APPARENT MINERALOCORTICOID EXCESS SYNDROMES)
95-3190 001 (INCREASED ABUNDANCE OF SPECIFIC SKELETAL-MUSCLE PROTEIN-TYROSINE PHOSPHATASES; ALPHA-B-CRYSTALLIN EXPRESSION)
95-3375 001 (THERMUS STRAINS; DNA RELATEDNESS; GENUS AEROMONAS; EMENDED DESCRIPTION OF CAMPYLOBACTER-HYOINTESTINALIS; POLYPHASIC TAXONOMY)
95-5061 001 (STRUCTURAL GENE; GLTC-DEPENDENT REGULATION OF BACILLUS -SUBTILIS GLUTAMATE SYNTHASE EXPRESSION; ARABIDOPSIS TYPE-1 PROTEIN PHOSPHATASE)
Cited References:
ABBADANDALOUSSI S, 1996, V142, P1149, MICROBIOL-UK
ANDERSSON LO, 1972, V20, P199, FEBS LETT
AUSUBEL FM, 1987, CURRENT PROTOCOLS MO
BAIROCH A, 1991, V19, P2241, NUCLEIC ACIDS RES
BOENIGK R, 1991, THESIS G AUGUST U GO
BRADFORD MM, 1976, V72, P248, ANAL BIOCHEM
CONWAY T, 1987, V169, P2591, J BACTERIOL
CONWAY T, 1989, V171, P3754, J BACTERIOL
DABROCK B, 1992, V58, P1233, APPL ENVIRON MICROB
DANIEL R, 1992, V100, P281, FEMS MICROBIOL LETT
DANIEL R, 1995, V177, P2151, J BACTERIOL
DANIEL R, 1995, V177, P4392, J BACTERIOL
DEVRIES GE, 1992, V174, P5346, J BACTERIOL
FISCHER RJ, 1993, V175, P6659, J BACTERIOL
GOODLOVE PE, 1989, V85, P209, GENE
HEYNDRICKX M, 1991, V34, P637, APPL MICROBIOL BIOT
HOMANN T, 1990, V33, P121, APPL MICROBIOL BIOT
JOHNSON EA, 1984, V160, P55, J BACTERIOL
KELL DB, 1981, V99, P81, BIOCHEM BIOPH RES CO
KESSLER D, 1992, V267, P18073, J BIOL CHEM
MARMUR J, 1961, V3, P208, J MOL BIOL
REID MF, 1994, V20, P13, CRIT REV MICROBIOL
RUCH FE, 1974, V119, P50, J BACTERIOL
SANGER F, 1977, V74, P5463, P NATL ACAD SCI USA
SEYFRIED M, 1996, V178, P5793, J BACTERIOL
SOHLING B, 1996, V178, P871, J BACTERIOL
SPRENGER GA, 1989, V135, P1255, J GEN MICROBIOL
STOJILJKOVIC I, 1995, V177, P1357, J BACTERIOL
TORAYA T, 1977, V252, P963, J BIOL CHEM
TSE P, 1988, V110, P1295, J AM CHEM SOC
WALTER KA, 1992, V174, P7149, J BACTERIOL
WIERENGA RK, 1985, V24, P1346, BIOCHEMISTRY-US
WILIAMSON VM, 1987, V209, P374, MOL GEN GENET
YOUNGLESON JS, 1988, V78, P355, GENE

12/5/10DIALOG(R)File 34:SciSearch(R) Cited Ref Sci(c) 1998 Inst for Sci Info. All rts. reserv.
05326299 Genuine Article#: VQ516 Number of References: 27
Title: KINETIC, DYNAMIC, AND PATHWAY STUDIES OF GLYCEROL METABOLISM BY KLEBSIELLA-PNEUMONIAE IN ANAEROBIC CONTINUOUS-CULTURE .1. THE PHENOMENA AND CHARACTERIZATION OF OSCILLATION AND HYSTERESIS
Author(s): MENZEL K; ZENG AP; BIEBL H; DECKWER WD
Corporate Source: GESELL BIOTECHNOL FORSCH MBH,BIOCHEM ENGN DIV,MASCHERODER WEG 1/D-38124 BRAUNSCHWEIG//GERMANY/; GESELL BIOTECHNOL FORSCH MBH,BIOCHEM ENGN DIV/D-38124 BRAUNSCHWEIG//GERMANY/
Journal: BIOTECHNOLOGY AND BIOENGINEERING, 1996, V52, N5 (DEC 5), P549-560 ISSN: 0006-3592
Language: ENGLISH Document Type: ARTICLE Geographic Location: GERMANY
Subfile: SciSearch; CC LIFE--Current Contents, Life Sciences; CC AGRI-- Current Contents, Agriculture, Biology & Environmental SciencesJournal Subject Category: BIOTECHNOLOGY & APPLIED MICROBIOLOGY
Abstract: Oscillation and hysteresis phenomena are observed in the anaerobic continuous fermentation of glycerol by Klebsiella pneumoniae in long-term cultivations under a variety of conditions. In this work, the conditions for the occurrence of these phenomena are reported and the patterns of cell growth and metabolism under oscillation are characterized. During an oscillation period, the formation rates of CO2, H-2, and formate and the consumption rate of alkali periodically pass values of maxima and minima, the latter being close to zero. The formation of biomass and fermentation products such as 1 ,3 - propanediol , acetate, and ethanol also undergo periodic changes which shift maxima and minima. Sustained oscillation occurs only under conditions of substrate excess within a distinct regime. At pH 7.0, it is only found at dilution rates above 0.15 h(-1) under the experimental conditions. At lower pH values, oscillations are more likely to happen, even at a relatively low dilution rate and low substrate excess. Whereas the amplitude of oscillations at pH 7.0 depends on both the dilution rate and the residual glycerol concentration (C-Glyc) the interval of oscillations appears to be only a function of C-Glyc. An increase of C-Glyc in culture damps the oscillation and leads to its disappearance at C-Glyc = 1100 to 1200 mmol/L (pH 7.0). The operation mode was also found to be an important parameter in determining the stability and actual state of the culture, resulting in hysteresis under certain conditions, particularly at low pH values. Generally, a large perturbation of cultivation conditions tends to cause oscillation and hysteresis. The results unambiguously demonstrate that the oscillation and hysteresis phenomena shown in this work are bound to genuine metabolic fluctuations of the microorganism. They reveal several differences and new features compared with those reported in the literature and cannot be readily explained by the mechanisms known so far. (C) 1996 John Wiley & Sons, Inc.
Descriptors--Author Keywords: GLYCEROL FERMENTATION ; KLEBSIELLA PNEUMONIAE ; OSCILLATION ; HYSTERESIS ; GROWTH AND METABOLISM ; SUBSTRATE EXCESS

Identifiers--KeyWords Plus: SACCHAROMYCES -CEREVISIAE; ZYMOM[illegible]MOBILIS; CHEMOSTAT CULTURE; FERMENTATION; BEHAVIOR; GROWTH; MODEL; 1 ,3 - PR[illegible]EDIOL ; YEAST
Cited References:
BELLGARDT KH, 1994, V35, P19, J BIOTECHNOL
BIEBL H, 1992, V36, P592, APPL MICROBIOL BIOT
BRUCE LJ, 1991, V13, P291, BIOTECHNOL LETT
CAMERON DC, 1995, BIOCH ENG 9 DAV SWIT
CHEN CI, 1990, V36, P19, BIOTECHNOL BIOENG
CLARKE KG, 1988, V32, P538, BIOTECHNOL BIOENG
EDWARDS VH, 1972, V14, P939, BIOTECHNOL BIOENG
GRAY P, 1994, CHEM OSCILLATIONS IN
GROSZ R, 1990, V36, P1006, BIOTECHNOL BIOENG
HARRISON DEF, 1974, V3, P168, ADV BIOCHEM ENG
HJORTSO MA, 1994, V49, P1083, CHEM ENG SCI
HOMANN T, 1990, V33, P21, APPL MICROBIOL BIOT
JOBSES IML, 1986, V28, P868, BIOTECHNOL BIOENG
KOIZUMI J, 1989, V34, P750, BIOTECHNOL BIOENG
MENZEL K, 1995, IN PRESS ENZYME MICR
MENZEL K, 1995, THESIS TU BRAUNSCHWE
PORRO D, 1988, V32, P411, BIOTECHNOL BIOENG
SOLOMON BO, 1994, V42, P222, APPL MICROBIOL BIOT
STRASSLE C, 1989, V9, P191, J BIOTECHNOL
STREEKSTRA H, 1987, V147, P268, ARCH MICROBIOL
VONMEYENBURG HK, 1973, P411, BIOL BIOCH OSCILLATO
WITT U, 1994, V195, P793, MACROMOL CHEM PHYS
ZENG AP, 1995, V42, P688, APPL MICROBIOL BIOT
ZENG AP, 1996, V14, P169, BIOPROCESS ENG
ZENG AP, 1994, V44, P902, BIOTECHNOL BIOENG
ZENG AP, 1996, V52, P561, BIOTECHNOL BIOENG
ZENG AP, 1993, V15, P770, ENZYME MICROB TECH

12/5/12 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci (c) 1998 Inst for Sci Info. All rts. reserv.
04839864 Genuine Article#: UL527 Number of References: 37
Title: CARBON AND ELECTRON FLOW IN CLOSTRIDIUM-BUTYRICUM GROWN IN CHEMOSTAT CULTURE ON GLYCEROL AND ON GLUCOSE
Author(s): ABBADANDALOUSSI S; DURR C; RAVAL G; PETITDEMANGE H
Corporate Source: UNIV NANCY 1,LAB CHIM BIOL 1,BP 239/F-54506 VANDOEUVRE NANCY//FRANCE/; UNIV NANCY 1,LAB CHIM BIOL 1/F-54506 VANDOEUVRENANCY//FRANCE/
Journal: MICROBIOLOGY-UK, 1996, V142, MAY (MAY), P1149-1158 ISSN: 1350-0872 Language: ENGLISH
Document Type: ARTICLE Geographic Location: FRANCE
Subfile: SciSearch; CC LIFE--Current Contents, Life SciencesJournal Subject Category: MICROBIOLOGY
Abstract: The metabolism of Clostridium butyricum DSM 5431 was studied in chemostat culture under carbon limitation using either glucose or glycerol. On glycerol, the enzymes glyceroldehydrogenase, diol dehydratase and 1 ,3 -propanediol (1,3-PD) dehydrogenase constitute the branch point that partitions the carbon flux between the competing pathways, i.e. formation of either 1,3-PD or acetate and butyrate. The increasing levels of these enzyme activities with increasing dilution rates (D) explained the constant proportion of glycerol conversion into 1,3-PD. The production of acetate or butyrate constitutes another important branch point and when D increased (i) large amounts of intracellular acetyl-CoA accumulated, (ii) the carbon flux switched from butyric acid to acetic acid, (iii) the specific activity of thiolase was not affected, suggesting this enzyme may be the bottleneck for carbon flux to butyrate biosynthesis providing an explanation for the accumulation of large amounts of intracellular acetyl-CoA, and (iv) high levels of NADH were found in the cell. Oxidation of NADH by 1,3-PD dehydrogenase was linked to the production of 3-hydroxypropionaldehyde (3-HPA) by glycerol dehydratase. The fact that high intracellular concentrations of NADH were found means that diol dehydratase activity is the rate-limiting step in 1,3-PD formation, avoiding the accumulation of 3-HPA which is a very toxic compound. The specific rate of glucose catabolism (q(glucose) = 11.1 mmol h(-1) g(-1)) was around four times lower than the specific rate of glycerol catabolism (q(glucose) = 57.4 mmol h(-1) g(-1)). On glucose-grown cells, reducing equivalents which are released in the glycolytic pathway were reoxidized by the butyric pathway and the low specific formation rate of butyric acid led to an increase in the intracellular level ofacetyl-CoA and NADH. Carbon flow was higher on glycerol due to the reoxidation of NADH by both butyric and PD pathways.
Descriptors--Author Keywords: CLOSTRIDIUM BUTYRICUM ; GLYCEROL CATABOLISM ; GLUCOSE CATABOLISM ; CARBON FLOW ; ELECTRON FLOW
Identifiers--KeyWords Plus: FERREDOXIN OXIDOREDUCTASES; PASTEURIANUM LMG-3285; PRODUCT INHIBITION; SOLVENT PRODUCTION; 1 ,3 -PROPANEDIOL ; FERMENTATION; ACETOBUTYLICUM; NADH
Research Fronts: 94-3070 001 (RAT SKELETAL-MUSCLE; DEVELOPMENTAL REGULATION; YEAST SACCHAROMYCES -CEREVISIAE)
Cited References:
AXELSSON LT, 1989, V2, P131, MICROB ECOL HLTH DIS
BAHL H, 1985, V514, P217, BIOTECHNOL BIOENG
BERNDT H, 1975, V103, P21, ARCH MICROBIOL
BIEBL H, 1991, V35, P701, APPL MICROBIOL BIOT
BIEBL H, 1992, V36, P592, APPL MICROBIOL BIOT
BIEBL H, 1982, P267, PROKARYOTES
BLUSSON H, 1981, V110, P176, ANAL BIOCHEM
BRADFORD MM, 1976, V72, P248, ANAL BIOCHEM
CHUNG TC, 1989, V2, P137, MICROB ECOL HLTH DIS
CRABBENDAM PM, 1985, V142, P375, ARCH MICROBIOL
DABROCK B, 1992, V58, P1233, APPL ENVIRON MICROB
DECKER K, 1972, V50, P529, ANAL BIOCHEM
DECKER K, 1965, P419, METHOD ENZYMAT AN
FICK M, 1985, V7, P503, BIOTECHNOL LETT
GIRBAL L, 1995, V16, P151, FEMS MICROBIOL REV
GIRBAL L, 1994, V176, P6433, J BACTERIOL
GUNZEL B, 1991, V36, P289, APPL MICROBIOL BIOT
GUNZEL B, 1991, THESIS U BRAUNSCHWEI
HEYNDRICKX M, 1991, V34, P637, APPL MICROBIOL BIOT
HEYNDRICKX M, 1991, V70, P52, J APPL BACTERIOL
JUNELLES AM, 1988, V17, P299, CURR MICROBIOL
JUNGERMANN K, 1973, V305, P268, BIOCHIM BIOPHYS ACTA
KLINGENBERG M, 1965, V4, P2045, METHOD ENZYMAT AN
LIPMANN F, 1945, V159, P21, J BIOL CHEM
LYNEN F, 1952, V64, P687, ANGEW CHEM
MATIN A, 1976, V94, P333, J GEN MICROBIOL
MEYER CL, 1989, V30, P450, APPL MICROBIOL BIOT
MICHELSAVIN D, 1990, V33, P127, APPL MICROBIOL BIOT
MORTENSON LE, 1963, V238, P7[illegible]OL CHEM
PETITDEMANGE H, 1976, V421, P[illegible]OCHIM BIOPHYS ACTA
RUCH FE, 1974, V119, P50, J BACTERIOL
TONG IT, 1991, V57, P3541, APPL ENVIRON MICROB
TORAYA T, 1977, V252, P963, J BIOL CHEM
TUBBS PK, 1969, V8, P535, METHOD ENZYMOL
VASCONCELOS I, 1994, V176, P1443, J BACTERIOL
WIMPENNY JWT, 1972, V111, P24, J BACTERIOL
WOODS DR, 1993, CLOSTRIDIA BIOTECHNO

12/5/22DIALOG(R)File 34:SciSearch(R) Cited Ref Sci(c) 1998 Inst for Sci Info. All rts. reserv.
00204392 Genuine Article#: CX734 Number of References: 29
Title: UTILIZATION OF GLYCEROL AS A HYDROGEN ACCEPTOR BY LACTOBACILLUS-REUTERI - PURIFICATION OF 1, 3- PROPANEDIOL-NAD+ OXIDOREDUCTASE
Author(s): TALARICO TL; AXELSSON LT; NOVOTNY J; FIUZAT M; DOBROGOSZ WJ
Corporate Source: N CAROLINA STATE UNIV,DEPT MICROBIOL/RALEIGH//NC/27695; N CAROLINA STATE UNIV,DEPT MICROBIOL/RALEIGH//NC/27695; SWEDISH UNIV AGR SCI,DEPT MICROBIOL/S-75007 UPPSALA//SWEDEN/
Journal: APPLIED AND ENVIRONMENTAL MICROBIOLOGY, 1990, V56, N4, P943-948 Language: ENGLISH
Document Type: ARTICLE Geographic Location: USA; SWEDEN
Subfile: SciSearch; Scisearch; CC LIFE--Current Contents, Life Sciences; CC AGRI--Current Contents, Agriculture, Biology & Environmental Sciences Journal Subject Category: MICROBIOLOGY
Research Fronts: 88-3064 002 (DEVELOPMENTAL REGULATION OF EMBRYONIC GENES; AXOLININ LOCALIZATION; CALCIUM-ACTIVATED PROTEIN-KINASE; GLUTATHIONE S-TRANSFERASE)
88-4564 001 (ALKALOPHILIC BACILLUS SP; MALIC ENZYME; MALTOHEXAOSE-FORMING AMYLASES; RIBOFLAVIN-BINDING PROTEIN)
Cited References:
AXELSSON L, 1987, V62, P433, J APPL BACTERIOL
AXELSSON LT, 1989, V2, P131, MICROB ECOL HLTH DIS
BRADFORD MM, 1976, V72, P248, ANAL BIOCHEM
CHUNG TC, 1989, V2, P137, MICROB ECOL HLTH DIS
CIRCLE SJ, 1945, V17, P259, IND ENG CHEM ANAL ED
DAVIS BJ, 1964, V121, P404, ANN NY ACAD SCI
DEITZ A, 1967, V20, P246, ANAL BIOCHEM
DOBROGOSZ WJ, 1989, P283, REGULATORY PROTECTIC
EFTHYMIOU C, 1962, V110, P258, J INFECT DIS
FORAGE RG, 1979, V569, P249, BIOCHIM BIOPHYS ACTA
FORAGE RG, 1982, V149, P413, J BACTERIOL
FORAGE RG, 1982, V151, P591, J BACTERIOL
GARTNER G, 1984, V130, P3225, J GEN MICROBIOL
JOHNSON EA, 1987, V169, P2050, J BACTERIOL
KANDLER O, 1980, V1, P264, ZBL BAKT MIKR HYG B
LAEMMLI UK, 1970, V227, P680, NATURE
LEE HA, 1963, V238, P2367, J BIOL CHEM
MARSHALL JH, 1985, V131, P1581, J GEN MICROBIOL
MCFEETERS RF, 1984, V139, P212, ANAL BIOCHEM
MCGREGOR WG, 1974, V249, P3132, J BIOL CHEM
SCHUTZ H, 1984, V5, P169, SYST APPL MICROBIOL
SHRAGO AW, 1986, V52, P574, APPL ENVIRON MICROB
SMILEY KL, 1962, V97, P538, ARCH BIOCHEM BIOPHYS
SOBOLOV M, 1960, V79, P261, J BACTERIOL
TALARICO TL, 1988, V32, P1854, ANTIMICROB AGENTS CH
TALARICO TL, 1989, V33, P674, ANTIMICROB AGENTS CH
TALARICO TL, 1990, V56, P1195, APPL ENVIRON MICROB
TANG JCT, 1982, V152, P1169, J BACTERIOL
THOMPSON ST, 1975, V72, P669, P NATL ACAD SCI USA

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S7 14 ID (sorted in duplicate order)

2/6/1 (Item 1 from file: 155)09434432 98096792
Construction and characterization of a 1,3-propanediol operon.

2/6/2 (Item 2 from file: 5) 14092702 BIOSIS Number: 01092702
Construction and characterization of a 1,3-propanediol operon Print Number: Biological Abstracts Vol. 105 Iss. 005 Ref. 064977

2/6/3 (Item 3 from file: 155) 07262836 92173858
Is Dhat culture bound? [letter] [see comments]

2/6/4 (Item 4 from file: 5) 1846249 BIOSIS Number: 61010809
DHAT SYNDROME A CULTURE BOUND SEX NEUROSIS OF THE ORIENT

2/6/5 (Item 5 from file: 155) 02063392 76060886
Dhat syndrome: a culture-bound sex neurosis of the orient.

2/6/6 (Item 6 from file: 155) 08917159 97046159
The ' Dhat syndrome': a culturally determined symptom of depression?

2/6/7 (Item 7 from file: 5) 13237955 BIOSIS Number: 99237955
The ' Dhat syndrome': A culturally determined symptom of depression? Print Number: Biological Abstracts Vol. 102 Iss. 010 Ref. 153585

2/6/8 (Item 8 from file: 155) 08326563 95297374
Dhat syndrome: is it a distinct clinical entity? A study of illnessbehaviour characteristics.

2/6/9 (Item 9 from file: 5) 11594086 BIOSIS Number: 98194086
Dhat syndrome: Is it a distinct clinical entity? A study of illnessbehaviour characteristics Print Number: Biological Abstracts Vol. 099 Iss. 009 Ref. 134389

2/6/10 (Item 10 from file: 155) 05697573 90215824
Dhat' syndrome--a useful clinical entity.

2/6/11 (Item 11 from file: 5) 9060870 BIOSIS Number: 93045870
DHAT SYNDROME A USEFUL DIAGNOSTIC ENTITY IN INDIAN CULTURE

2/6/12 (Item 12 from file: 155) 07438128 92096793
Dhat syndrome--a useful diagnostic entity in Indian culture [see comments]

2/6/13 (Item 13 from file: 155) 06428746 90352450
Dhat syndrome. A sex neurosis of the Indian subcontinent.

2/6/14 (Item 14 from file: 5) 7653425 BIOSIS Number: 90021425
DHAT SYNDROME A SEX NEUROSIS OF THE INDIAN SUBCONTINENT

2/6/15 (Item 15 from file: 5) 7706073 BIOSIS Number: 90074073
EFFECTS OF DIHYDROTESTOSTERONE TREATMENT ON ADRENAL GLAND FUNCTION AND MORPHOLOGY IN ADULT FEMALE GUINEA-PIGS

2/6/16 (Item 16 from file: 155) 09281984 97457194
Glycerol conversion to 1,3-propanediol by Clostridiumpasteurianum: cloning and expression of the gene encoding 1,3-propanediol dehydrogenase.

2/6/17 (Item 17 from file: 5) 13751846 BIOSIS Number: 99751846
Glycerol conversion to 1,3-propanediol by Clostridiumpasteurianum: Cloning and expression of the gene encoding 1,3-propanediol dehydrogenase Print Number: Biological Abstracts Vol. 104 Iss. 009 Ref. 126627

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2/6/19 (Item 19 from file: 155) 08287549 95238288
Purification of 1,3-propanediol dehydrogenase from Citrobacter freundii and cloning, sequencing, and overexpression of the corresponding gene in Escherichia coli.

2/6/20 (Item 20 from file: 5) 11672114 BIOSIS Number: 98272114
Purification of 1,3-propanediol dehydrogenase from Citrobacter freundii and cloning, sequencing, and overexpression of the corresponding gene in Escherichia coli Print Number: Biological Abstracts Vol. 099 Iss. 012 Ref. 177032

2/6/21 (Item 21 from file: 5) 6505458 BIOSIS Number: 85105979
PSYCHASTHENIC SYNDROME RELATED TO LEUKORRHEA IN INDIAN WOMEN

2/6/22 (Item 22 from file: 5) 11877891 BIOSIS Number: 98477891
Sexual dysfunction on the In dian subcontinent Print Number: Biological Abstracts/RRM Vol. 047 Iss. 011 Ref. 179518

2/6/23 (Item 23 from file: 5) 7109056 BIOSIS Number: 88031801
SEXUAL PROBLEMS IN THE YOUNG ADULTS OF BUNDELKHAND REGION INDIA

2/6/24 (Item 24 from file: 155) 07442347 92152855
1,3-Propanediol production by Escherichia coli expressing genes from the Klebsiella pneumoniae dha regulon.

2/6/25 (Item 25 from file: 5) 9066822 BIOSIS Number: 93051822
1 3 PROPANEDIOL PRODUCTION BY ESCHERICHIA-COLI EXPRESSING GENES FROM THE KLEBSIELLA-PNEUMONIAE DHA REGULON

2/7/1 (Item 1 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 1998 Dialog Corporation. All rts. reserv.
09434432 98096792
Construction and characterization of a 1,3-propanediol operon.
Skraly FA; Lytle BL; Cameron DC
Department of Chemical Engineering, University of Wisconsin-Madison, Madison 53706-1691, USA.
Appl Environ Microbiol (UNITED STATES) Jan 1998, 64 (1) p98-105, ISSN 0099-2240 Journal Code: 6K6
Contract/Grant No.: 5 T32 GM08349-04, GM, NIGMS
Languages: ENGLISH Document type: JOURNAL ARTICLE
The genes for the production of 1,3-propanediol (1,3-PD) in Klebsiella pneumoniae, dhaB, which encodes glycerol dehydratase, and dhaT , which encodes 1,3-PD oxidoreductase, are naturally under the control of twodifferent promoters and are transcribed in different directions. These genes were reconfigured into an operon containing dhaB followed by dhaT under the control of a single promoter. The operon contains unique restriction sites to facilitate replacement of the promoter and other modifications. In a fed-batch cofermentation of glycerol and glucose. Escherichia coli containing the operon consumed 9.3 g of glycerol per liter and produced 6.3 g of 1,3-PD per liter. The fermentation had two distinct phases. In the first phase, significant cell growth occurred and the products were mainly 1,3-PD and acetate. In the second phase, very little growth occurred and the main products were 1,3-PD and pyruvate. The first enzyme in the 1,3-PD pathway, glycerol dehydratase, requires coenzyme B12, which must be provided in E. coli fermentations. However, the amount of coenzyme B12 needed was quite small, with 10 nM sufficient for good 1,3-PD production in batch cofermentations. 1,3-PD is a useful intermediate in the production of polyesters. The 1,3-PD operon was designed so that it can be readily modified for expression in other prokaryotic hosts; therefore, it is useful for metabolic engineering of 1,3-PD pathways from glycerol and other substrates such as glucose.

7/6/1 (Item 1 from file: 155) 08744699 96422012
Cloning, sequencing, and overexpression of the genes encoding coenzyme B12-dependent glycerol dehydratase of Citrobacter freundii.

7/6/2 (Item 2 from file: 5) 13246298 BIOSIS Number: 99246298
Cloning, sequencing, and overexpression of the genes encoding coenzyme B-12-dependent glycerol dehydratase of Citrobacter freundii Print Number: Biological Abstracts Vol. 102 Iss. 011 Ref. 161928

7/6/3 (Item 3 from file: 5) 7160452 BIOSIS Number: 88083197
COMMUNITY ORGANIZATION OF BENTHIC DIPTERANS IN THE LITTORAL ZONE OF HOOGHLY ESTUARY SAGAR ISLAND INDIA

7/6/4 (Item 4 from file: 5) 7689622 BIOSIS Number: 90057622
COMPARATIVE GROWTH ANALYSIS OF JUTE VARIETIES CORCHORUS-CAPSULARIS L. AND CORCHORUS-OLITORIUS L

7/6/5 (Item 5 from file: 5) 14042356 BIOSIS Number: 01042356
Conformational flexibility o f poly(ethylenimine) and its derivatives Print Number: Biological Abstracts Vol. 105 Iss. 003 Ref. 028914

7/6/6 (Item 6 from file: 5) 5809092 BIOSIS Number: 83071399
DRY MATTER YIELD OF PROMISING GRASSES IN TROPICAL ARID RANGELANDS OF SIND PAKISTAN

7/6/7 (Item 7 from file: 5) 8594517 BIOSIS Number: 92059517
THE INFLUENCE OF BODY MASS AND TEMPERATURE ON THE STANDARD METABOLIC RATE OF THE HERBIVOROUS DESERT LIZARD UROMASTYX-MICROLEPIS

7/6/8 (Item 8 from file: 5) 10032341 BIOSIS Number: 95032341
THE EFFECT OF ABSCISIC ACID AND ABSCISIC ACID METABOLITES ON THE GERMINATION OF CRESS SEED

7/6/9 (Item 9 from file: 5) 11224306 BIOSIS Number: 97424306
Effects of abscisic acid metabolites and analogs on freezing tolerance and gene expression in bromegrass (Bromus inermis Leyss) cell cultures Print Number: Biological Abstracts Vol. 098 Iss. 007 Ref. 095118

7/6/10 (Item 10 from file: 155) 08772929 96409458
EPR spin trapping study of the decomposition of azo compounds in aqueous solutions by ultrasound: potential for use as sonodynamic sensitizers for cell killing.

7/6/11 (Item 11 from file: 5) 2971343 BIOSIS Number: 69008750
MULTI VARIATE APPROACHES TO THE ANALYSIS OF THE VEGETATION ENVIRONMENTAL COMPLEX OF GHARO DHABEJI AND MANGHUPIR PAKISTAN INDUSTRIAL AREAS

7/6/12 (Item 12 from file: 5) 5900629 BIOSIS Number: 84033194
OBSERVATIONS ON CHAMAELEO-CALYPTRATUS-CALYPTRATUS DUMERIL AND DUMERIL 1851 IN THE YEMEN ARAB REPUBLIC SAURIA CHAMAELEONIDAE

7/6/13 (Item 13 from file: 5) 10482611 BIOSIS Number: 96082611
STUDIES ON THE HEMICELLULOSE FROM DHABDHABEY S-718 JUTE

7/6/14 (Item 14 from file: 5) 8618093 BIOSIS Number: 92083093
PROXIMATE COMPOSITION A COMPARISON OF S-718 JUTE WITH CORCHORUS-CAPSULARIS AND CORCHORUS-OLITORIUS

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5/6/1 (Item 1 from file: 5) 6478452 BIOSIS Number: 85078973
ATR1 A SACCHAROMYCES-CEREVISIAE GENE ENCODING A TRANSMEMBRANE PROTEIN REQUIRED FOR AMINOTRIAZOLE RESISTANCE

5/6/2 (Item 2 from file: 73) 10576332 EMBASE No: 98007300
A base-off analogue of coenzyme-B12 with a modified nucleotide loop 1H-NMR structure analysis and kinetic studies with (R)-methylmalonyl-CoA mutase, glycerol dehydratase, and diol dehydratase

5/6/3 (Item 3 from file: 5) 9545782 BIOSIS Number: 94050782
A CODING REGION SEGMENT IS NECESSARY BUT NOT SUFFICIENT FOR RAPID DECAY OF THE HIS3 MRNA IN YEAST

5/6/4 (Item 4 from file: 5) 7126193 BIOSIS Number: 88048938
CLONING OF HISTIDINE GENES OF AZOSPIRILLUM-BRASILENSE ORGANIZATION OF THE ABFH GENE CLUSTER AND NUCLEOTIDE SEQUENCE OF THE HISB GENE

5/6/5 (Item 5 from file: 5) 3052704 BIOSIS Number: 70002611
A PHYSICAL GENETIC AND TRANSCRIPTIONAL MAP OF THE CLONED HIS-3 GENE REGION OF SACCHAROMYCES-CEREVISIAE

5/6/6 (Item 6 from file: 5) 5324378 BIOSIS Number: 81091685
GENE STRUCTURE IN THE HISTIDINE OPERON OF ESCHERICHIA-COLI IDENTIFICATION AND NUCLEOTIDE SEQUENCE OF THE HIS-B GENE

5/6/7 (Item 7 from file: 5) 11171565 BIOSIS Number: 97371565
Isolation and characterization of cDNAs encoding imidazoleglycerolphosphate dehydratase from Arabidopsis thaliana Print Number: Biological Abstracts Vol. 098 Iss. 005 Ref. 060054

5/6/8 (Item 8 from file: 155) 09269790 97296406
Kinetic investigations with inhibitors that mimic the posthomolysis intermediate in the reactions of coenzyme-B12-dependent glycerol dehydratase and diol dehydratase.

5/6/9 (Item 9 from file: 5) 10016508 BIOSIS Number: 95016508
MOLECULAR CLONING OF THE IMIDAZOLEGLYCEROLPHOSPHATE DEHYDRATASE GENE OF TRICHODERMA-HARZIANUM BY GENETIC COMPLEMENTATION IN SACCHAROMYCES -CEREVISIAE USING A DIRECT EXPRESSION VECTOR

5/6/10 (Item 10 from file: 5) 11585026 BIOSIS Number: 98185026
Purification and characterization of the imidazoleglycerol-phosphate dehydratase of Saccharomyces cerevisiae from recombinant Escherichia coli Print Number: Biological Abstracts Vol. 099 Iss. 009 Ref. 125329

5/6/11 (Item 11 from file: 155) 09298196 98012959
Propanediol utilization genes (pdu) of Salmonella typhimurium: three genes for the propanediol dehydratase.

5/6/12 (Item 12 from file: 5) 2762833 BIOSIS Number: 68017740
PROTEOLYTIC DEGRADATION OF IMIDAZOLE GLYCEROL PHOSPHATE DEHYDRATASE HISTIDINOL PHOSPHATE FROM SALMONELLA-TYPHIMURIUM AND THE ISOLATION OF A RESISTANT BI FUNCTIONAL CORE ENZYME

5/5/1 (Item 1 from file: 5) DIALOG(R)File 5:BIOSIS PREVIEWS(R) (c) 1998 BIOSIS. Alhts. reserv.
6478452 BIOSIS Number: 85078973
ATR1 A SACCHAROMYCES-CEREVISIAE GENE ENCODING A TRANSMEMBRANE PROTEIN REQUIRED FOR AMINOTRIAZOLE RESISTANCE
KANAZAWA S; DRISCOLL M; STRUHL K
DEP. BIOLOGICAL CHEM., HARVARD MED. SCH., BOSTON, MASS. 02115.
MOL CELL BIOL 8 (2). 1988. 664-673. CODEN: MCEBD Full Journal Title: Molecular and Cellular Biology Language: ENGLISH
In Saccharomyces cerevisiae, 3-amino-1,2,4-triazole (aminotriazole) competitively inhibits the activity of imidazoleglycerolphosphate dehydratase , the product of the HIS3 gene. Wild-type strains are able to grow in the presence of 10 mM aminotriazole because they induce the level of imidazoleglycerolphosphate dehydratase . However, strains containing gcn4 mutations are unable to grow in medium containing aminotriazole because they lack the GCN4 transcriptional activator protein necessary for the coordinate induction of HIS3 and other amino acid biosynthetic genes. Here, we isolated a new gene, designated ATR1, which when present in multiple copies per cell allowed gcn4 mutant strains to grow in the presence of aminotriazole. In wild-type strains, multiple copies of ATR1 permitted growth at extremely high concentrations of aminotriazole (80 mM), whereas a chromosomal deletion of ATR1 caused growth inhibition at very low concentrations (5 mM). When radioactive aminotriazole was added exogenously, cells with multiple copies of ATR1 accumulated less aminotriazole than wild-type cells, whereas cells with the atr1 deletion mutation retained more aminotriazole. Unlike the mammalian mdr or yeast PDR genes that confer resistance to many drugs, ATR1 appears to confer resistance only to aminotriazole. Genetic analysis, mRNA mapping, and DNA sequencing revealed that (i) the primary translation product of ATR1 contains 547 amino acids, (ii) ATR1 transcription is induced by aminotriazole, and (iii) the ATR1 promoter region contains a binding site for the GCN4 activator protein. The deduced amino acid sequence suggests that ATR1 protein is very hydrophobic with many membrane-spanning regions, has several potential glycosylation sites, and may contain an ATP-binding site. We suggest that ATR1 encodes a membrane-associated component of the machinery responsible for pumping aminotriazole (and possibly other toxic compounds) out of the cell.
Descriptors/Keywords: IMIDAZOLE GLYCEROL PHOSPHATE DEHYDRATASE TOXIN AUTORADIOGRAPHY DNA SEQUENCE ATP BINDING SITE
Concept Codes:
*02504 Cytology and Cytochemistry-Plant
*03504 Genetics and Cytogenetics-Plant
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*10064 Biochemical Studies-Proteins, Peptides and Amino Acids
*10300 Replication, Transcription, Translation
*10506 Biophysics-Molecular Properties and Macromolecules
*10508 Biophysics-Membrane Phenomena
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
10060 Biochemical Studies-General
Biosystematic Codes:
15100 Ascomycetes
Super Taxa:
Microorganisms; Plants; Nonvascular Plants; Fungi

5/5/3 (Item 3 from file: 5) DIALOG(R)File 5:BIOSIS PREVIEWS(R) (c) 1998 BIOSIS. Alhts. reserv.
9545782 BIOSIS Number: 94050782
A CODING REGION SEGMENT IS NECESSARY BUT NOT SUFFICIENT FOR RAPID DECAY OF THE HIS3 MRNA IN YEAST
HERRICK D; JACOBSON A
DEP. MOL. GENETICS AND MICROBIOL, UNIV. MASSACHUSETTS MED. SCH., 55 LAKE AVE. NORTH, WORCESTER, MASS. 01655, USA.
GENE (AMST) 114 (1). 1992. 35-41. CODEN: GENED Full Journal Title: GENE (Amsterdam) Language: ENGLISH
In Saccharomyces cerevisiae, the HIS3 (encoding imidazoleglycerolphosphate dehydratase) mRNA is unstable (t1/2 = 7 min), whereas the ACT1 (encoding actin) mRNA is more stable (t1/2 = 30 min). To define determinants responsible for rapid mRNA decay, hybrid genes comprised of various regions of these two mRNAs were constructed, transformed into yeast on centromere-containing vectors, and the half-lives of the resultant chimeric mRNAs were measured. To examine whether the 3'-untranslated region (3'-UTR) of HIS3 can confer instability to the ACT1 mRNA, DNA encoding the 3'-UTR of ACT1 was replaced with the corresponding region of HIS3. The hybrid mRNA containing the HIS3 3'-UTR decayed at a rate similar to the endogenous ACT1 mRNA. The mRNA containing the HIS3 5'-UTR and most of the HIS3 coding region fused to an ACT1 3'-fragment was unstable, indicating that HIS3 instability determinants are located within the HIS3 5'-UTR or coding sequence. Deleting 411 nucleotides (nt) from the coding region of either HIS3 or the 5'-HIS3-ACT1-3' chimeric gene resulted in a three- to fourfold stabilization of the respective mRNAs. However, insertion of this 411-nt fragment in-frame into the entire ACT1 gene had no destabilizing effect on the resultant hybrid mRNA. We conclude that the instability determinants of HIS3 mRNA are complex, involving a coding region segment and, possibly, the 5'-UTR.
Descriptors/Keywords: SACCHAROMYCES -CEREVISIAE ACTIN ENCODING MESSENGER RNA IMIDAZOLE GLYCEROLPHOSPHATE DEHYDRATASE ENCODING MESSENGER RNA CHIMERIC MESSENGER RNA
Concept Codes:
*03504 Genetics and Cytogenetics-Plant
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*51518 Plant Physiology, Biochemistry and Biophysics-Enzymes
*51519 Plant Physiology, Biochemistry and Biophysics-Metabolism
*51522 Plant Physiology, Biochemistry and Biophysics-Chemical Constituents
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10506 Biophysics-Molecular Properties and Macromolecules
10808 Enzymes-Physiological Studies
13014 Metabolism-Nucleic Acids, Purines and PyrimidinesBiosystematic Codes:
15100 Ascomycetes
Super Taxa:
Microorganisms; Plants; Nonvascular Plants; Fungi

5/5/4 (Item 4 from file: 5) DIALOG(R)File 5:BIOSIS PREVIEWS(R) (c) 1998 BIOSIS. Alhts. reserv.
7126193 BIOSIS Number: 88048938
CLONING OF HISTIDINE GENES OF AZOSPIRILLUM-BRASILENSE ORGANIZATION OF THEABFH GENE CLUSTER AND NUCLEOTIDE SEQUENCE OF THE HISB GENE
FANI R; BAZZICALUPO M; DAMIANI G; BIANCHI A; SCHIPANI C; SGARAMELLA V; POLSINELLI M
DIP. DI BIOL. ANIMALE AND GENETICA, UNIV. DI FIRENZE, VIA ROAMANA 17, FIRENZE, ITALY.
MOL GEN GENET 216 (2-3). 1989. 224-229. CODEN: MGGEA Full Journal Title: Molecular & General Genetics Language: ENGLISH
A cluster of four Azospirillum brasilense histidine biosynthetic genes, hisA, hisB, hisF and hisH, was identified on a 4.5 kb DNA fragment and its organization studied by complementation analysis of Escherichia coli mutations and nucleotide sequence. The nucleotide sequence of a 1.3 kb fragment that complemented the E. coli hisB mutation was determined and an ORF of 624 nucleotides which can code for a protein of 207 amino acids was identified. A significant base sequence homology with the carboxyterminal moiety of the E. coli hisB gene (0.53) and the Saccharomyces cerevisiae HIS3 gene (0.44), coding for an imidazole glycerolphosphate dehydratase activity was found. The amino acid sequence and composition, the hydropathic profile and the predicted secondary structures of the yeast, E. coli and A. brasilense proteins were compared. The significance of the data presented is discussed.
Descriptors/Keywords: ESCHERICHIA-COLI SACCHAROMYCES -CEREVISIAE IMIDAZOLE GLYCEROLPHOSPHATE DEHYDRATASE MOLECULAR SEQUENCE DATA DEDUCED AMINO ACID SEQUENCE SECONDARY STRUCTURE
Concept Codes:
*03504 Genetics and Cytogenetics-Plant
*10010 Comparative Biochemistry, General
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*10802 Enzymes-General and Comparative Studies; Coenzymes

*10806 Enzymes-Chemical and Physical
*31000 Physiology and Biochemistry of Bacteria
*31500 Genetics of Bacteria and Viruses
*51518 Plant Physiology, Biochemistry and Biophysics-Enzymes
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10506 Biophysics-Molecular Properties and Macromolecules
Biosystematic Codes:
04610 Spirillaceae (1979-)
04810 Enterobacteriaceae (1979-)
15100 Ascomycetes
Super Taxa:
Microorganisms; Bacteria; Plants; Nonvascular Plants; Fungi

5/5/5 (Item 5 from file: 5) DIALOG(R)File 5:BIOSIS PREVIEWS(R) (c) 1998 BIOSIS. Alrts. reserv.
3052704 BIOSIS Number: 70002611
A PHYSICAL GENETIC AND TRANSCRIPTIONAL MAP OF THE CLONED HIS-3 GENEREGION OF SACCHAROMYCES-CEREVISIAE
STRUHL K; DAVIS R W
DEP. BIOCHEM., STANFORD UNIV. SCH. MED., STANFORD, CALIF. 94305, USA.
J MOL BIOL 136 (3). 1980. 309-332. CODEN: JMOBA Full Journal Title: Journal of Molecular Biology
Language: ENGLISH
A cloned fragment of S. cerevisiae (yeast) DNA containing the structural gene for imidazoleglycerolphosphate dehydratase (his3) was mapped using a combination of physical techniques and classical bacteriophage .lambda. genetics. A physical map was constructed using subcloned restriction endonuclease fragments from the original yeast DNA fragment (Sc2601) and using deletion mutants of a bacteriophage .lambda. hybrid conataining Sc2601. The deletion endpoints within the yeast DNA segment were mapped with respect to restriction endonuclease cleavage sites of Sc2601. The wild-type his3 gene, as defined by complementation of an Escherichia coli auxotroph lacking imidazoleglycerolphosphate dehydratase activity, is localized to a 700 base pair [bp] region. The 5' and 3' endpoints of the gene are defined within limits of 50 bp. The lesions in cloned mutant his3 genes that are non-functional in yeast and in E. coli were mapped by phage recombination using deletion mutants of the his3 gene generated in E. coli. Transcription of the his3 gene in E. coli is initiated from a promoter located less than 100 bp from the start of the structural gene.
Descriptors/Keywords: ESCHERICHIA-COLI BACTERIO PHAGE LAMBDA IMIDAZOLE GLYCEROL PHOSPHATE DEHYDRATASE RESTRICTION ENDO NUCLEASE DELETION MUTANT COMPLEMENTATION PROMOTER STRUCTURAL GENE MAPPING CLONE GENETIC ENGINEERING
Concept Codes:
*02504 Cytology and Cytochemistry-Plant
*03504 Genetics and Cytogenetics-Plant
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*10300 Replication, Transcription, Translation
*10506 Biophysics-Molecular Properties and Macromolecules
*10808 Enzymes-Physiological Studies
*13012 Metabolism-Proteins, Peptides and Amino Acids
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*51518 Plant Physiology, Biochemistry and Biophysics-Enzymes
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10804 Enzymes-Methods
31000 Physiology and Biochemistry of Bacteria
31500 Genetics of Bacteria and Viruses
32000 Microbiological Apparatus, Methods and Media
33504 Virology-Bacteriophage
51522 Plant Physiology, Biochemistry and Biophysics-Chemical Constituents
Biosystematic Codes:
02100 Bacterial Viruses (1979-80)
04810 Enterobacteriaceae (1979-)
15100 Ascomycetes
Super Taxa:
Microorganisms; Viruses; Bacteria; Plants; Nonvascular Plants; Fungi

5/5/6 (Item 6 from file: 5) DIALOG(R)File 5:BIOSIS PREVIEWS(R) (c) 1998 BIOSIS. Alrts. reserv.
5324378 BIOSIS Number: 81091685
GENE STRUCTURE IN THE HISTIDINE OPERON OF ESCHERICHIA-COLI IDENTIFICATIONAND NUCLEOTIDE SEQUENCE OF THE HIS-B GENE
CHIARIOTTI L; NAPPO A G; CARLOMAGNO M S; BRUNI C B
CENT. ENDOCRINOL. ONCOL. SPERIMENTALE CNR, DIP. BIOL. PATOL. CELLULARE MOLECOLARE, UNIV. NAPOLI, NAPLES, ITALY.
MOL GEN GENET 202 (1). 1986. 42-47. CODEN: MGGEA Full Journal Title: Molecular & General Genetics
Language: ENGLISH
The bifunctional enzyme imidazoleglycerolphosphate dehydratase andhistidinolphosphate phosphatase is encoded by the hisB gene. The fourth gene of the histidine operon, hisB, was cloned and mapped on a 2,300 base pair DNA fragment. In the present study we report the complete nucleotide sequence of the hisB gene of Escherichia coli. The gene is 1,068 nucleotides long and codes for a protein of 355 amino acids with an apparent molecular weight of 39,998 daltons. The protein product(s) of the hisB region of both Salmonella typhimurium and E. coli were identified by subcloning and expression in an in vitro translation system. In both organisms the hisB gene directed the synthesis of a single protein with an apparent molecular weight of 40,500 daltons, consistent with the data derived from the nucleotide sequence analysis.
Descriptors/Keywords: SALMONELLA -TYPHIMURIUM BIFUNCTIONAL ENZYME DNA CLONING MAPPING EXPRESSION AMINO-ACIDS
Concept Codes:
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*10064 Biochemical Studies-Proteins, Peptides and Amino Acids
*10300 Replication, Transcription, Translation
*10506 Biophysics-Molecular Properties and Macromolecules
*10806 Enzymes-Chemical and Physical
*13012 Metabolism-Proteins, Peptides and Amino Acids
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*31000 Physiology and Biochemistry of Bacteria
*31500 Genetics of Bacteria and Viruses
10010 Comparative Biochemistry, General
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
10054 Biochemical Methods-Proteins, Peptides and Amino Acids
10060 Biochemical Studies-General
10802 Enzymes-General and Comparative Studies; Coenzymes
10804 Enzymes-Methods
10808 Enzymes-Physiological Studi
32000 Microbiological Apparatus, Methods and Media
32600 In Vitro Studies, Cellular and Subcellular
Biosystematic Codes:
04810 Enterobacteriaceae (1979-)
Super Taxa:
Microorganisms; Bacteria

5/5/8 (Item 8 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 1998 Dialog Corporation. Alrts. reserv.
09269790 97296406
Kinetic investigations with inhibitors that mimic the posthomolysisintermediate in the reactions of coenzyme-B12-dependent glycerol dehydratase and diol dehydratase.
Poppe L; Retey J
Department of Biochemistry, Institute of Organic Chemistry, University of Karlsruhe, Germany.
Eur J Biochem (GERMANY) Apr 15 1997, 245 (2) p398-401, ISSN 0014-2956 Journal Code: EMZ Languages: ENGLISH Document type: JOURNAL ARTICLE JOURNAL ANNOUNCEMENT: 9709 Subfile: INDEX MEDICUS
Kinetic investigations were performed on the coenzyme-B12-dependent glycerol dehydratase and diol dehydratase reactions using 1,2-propanediol as substrate and [omega-(adenosin-5'-O-yl)alkyl]cobalamins as mimics of the posthomolysis intermediate state of the coenzyme. All the coenzyme-B12 analogues with oligomethylene chains (C3-C7) inserted between the central Co atom and the 5' O of the adenosine moiety were competitive inhibitors with respect to coenzyme B12. The apparent inhibition constants (Ki) of the shorter-chain inhibitors, especially the C5 inhibitor, were smaller for both enzymes than those of the longer-chain (C6, C7) compounds. These results are in agreement with the expected (0.6-0.9 nm) distance between the Co and 5'-methylene paramagnetic centers in the posthomolysis intermediate state of coenzyme B12 in these reactions.
Tags: Support, Non-U.S. Gov't
Descriptors: *Cobamides--Metabolism--ME; *Enzyme Inhibitors—Metabolism --ME; *Hydro-Lyases--Metabolism--ME; *Propanediol Dehydratase—Metabolism --ME; Adenosine--Metabolism--ME; Antioxidants--Metabolism--ME; Binding, Competitive; Catalysis; Citrobacter; Cobamides--Chemistry--CH; Electron Spin Resonance Spectroscopy; Enzyme Inhibitors--Chemical Synthesis--CS; Escherichia coli; Isomerism; Kinetics; Porphyrins--Metabolism--ME;
Propylene Glycols--Metabolism--ME; Protein Conformation; Salmonellatyphimurium; Vehicles--Metabolism—ME
CAS Registry No.: 0 (Antioxidants); 0 (Cobamides); 0 (Enzyme Inhibitors); 0 (Porphyrins); 0 (Propylene Glycols); 0 (Vehicles); 13870-90-1(cobamamide); 262-76-0 (corrinoid); 57-55-6 (Propylene Glycol); 58-61-7 (Adenosine)
Enzyme No.: EC 4.2.1. (Hydro-Lyases); EC 4.2.1.28 (Propanediol Dehydratase); EC 4.2.1.30 glycerol dehydratase)

5/5/9 (Item 9 from file: 5) DIALOG(R)File 5:BIOSIS PREVIEWS(R) (c) 1998 BIOSIS. Alrts. reserv.
10016508 BIOSIS Number: 95016508
MOLECULAR CLONING OF THE IMIDAZOLEGLYCEROLPHOSPHATE DEHYDRATASE GENE OF TRICHODERMA-HARZIANUM BY GENETIC COMPLEMENTATION IN SACCHAROMYCES -CEREVISIAE USING A DIRECT EXPRESSION VECTOR
GOLDMAN G H; DEMOLDER J; DEWAELE S; HERRERA-ESTRELLA A; GEREMIA R A; VAN MONTAGU M; CONTRERAS R
LAB. VOOR GENETICA, UNIVERSITEIT GENT, K.L. LEDEGANCKSTRAAT 35, B-9000 GENT, BELGIUM.
MOL GEN GENET 234 (3). 1992. 481-488. CODEN: MGGEA Full Journal Title: Molecular & General Genetics
Language: ENGLISH
The Trichoderma harzianum imidazoleglycerolphosphate dehydratase gene (igh) has been isolated by complementation of a Saccharomyces cerevisiae his3 mutant using a direct expression vector. This Escherichia coli-yeast shuttle vector was developed to allow efficient cloning and expression ofcDNA libraries. The cDNA is 627 nucleotides long and codes for a protein of 209 amino acids with an apparent molecular mass of 22 466 daltons. The predicted protein sequence showed 63.6%, 58.7%, and 38.4% identity respectively to the corresponding enzymes from S. cerevisiae, Pichia pastoris and E. coli. Northern analysis showed that the expression of the igh gene in T. harzianum is not inhibited by external histidine and the level of igh mRNA was about threefold higher in cells starved of histidine.
Descriptors/Keywords: ESCHERICHIA-COLI PICHIA -PASTORIS IGH GENE MOLECULAR SEQUENCE DATA NUCLEOTIDE SEQUENCE AMINO ACID SEQUENCE EMBL-Z11528 HOMOLOGY HISTIDINE GENE REGULATION EC 4.2.1.19 METHOD
Concept Codes:
*03504 Genetics and Cytogenetics-Plant
*10010 Comparative Biochemistry, General
*10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*10064 Biochemical Studies-Proteins, Peptides and Amino Acids
*10300 Replication, Transcription, Translation
*10506 Biophysics-Molecular Properties and Macromolecules
*10802 Enzymes-General and Comparative Studies; Coenzymes
*10806 Enzymes-Chemical and Physical
*13012 Metabolism-Proteins, Peptides and Amino Acids
*31000 Physiology and Biochemistry of Bacteria
*31500 Genetics of Bacteria and Viruses
*32000 Microbiological Apparatus, Methods and Media
*51518 Plant Physiology, Biochemistry and Biophysics-Enzymes
*51519 Plant Physiology, Biochemistry and Biophysics-Metabolism
*51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and Methods
Biosystematic Codes:
06702 Enterobacteriaceae (1992-)
15100 Ascomycetes
15500 Fungi Imperfecti or Deuteromycetes
Super Taxa:
Microorganisms; Bacteria; Eubacteria; Plants; Nonvascular Plants; Fungi

5/5/11 (Item 11 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 1998 Dialog Corporation. Alrts. reserv.
09298196 98012959
Propanediol utilization genes (pdu) of Salmonella typhimurium: threegenes for the propanediol dehydratase.
Bobik TA; Xu Y; Jeter RM; Otto KE; Roth JR
Department of Microbiology and Cell Science, University of Florida, Gainesville 32611, USA.
bobik@micro.ifas.ufl.edu

J Bacteriol (UNITED STATES) Nov 1997, 179 (21) p6633-9, ISSN 0021-[redacted]urnal Code: HH3 Contract/Grant No.: GM49372, GM, NIGMS; GM34804, GM, NIGMS Lan[redacted]: ENGLISH Document type: JOURNAL ARTICLE JOURNAL ANNOUNCEMENT: 9801 Subfile: INDEX MEDICUS
The propanediol utilization (pdu) operon of Salmonella typhimurium encodes proteins required for the catabolism of propanediol, including a coenzyme B12-dependent propanediol dehydratase. A clone that expresses propanediol dehydratase activity was isolated from a Salmonella genomic library. DNA sequence analysis showed that the clone included part of the pduF gene, the pduABCDE genes, and a long partial open reading frame (ORF1). The clone included 3.9 kbp of pdu DNA which had not been previously sequenced. Complementation and expression studies with subclones constructed via PCR showed that three genes (pduCDE) are necessary and sufficient for propanediol dehydratase activity. The function of ORF1 was not determined. Analyses showed that the S. typhimurium propanediol dehydratase was related to coenzyme B12-dependent glycerol dehydratases from Citrobacter freundii and Klebsiella pneumoniae. Unexpectedly, the S. typhimurium propanediol dehydratase was found to be 98% identical in amino acid sequence to the Klebsiella oxytoca propanediol dehydratase; this is a much higher identity than expected, given the relationship between these organisms. DNA sequence analyses also supported previous studies indicating that the pdu operon was inherited along with the adjacent cobalamin biosynthesis operon by a single horizontal gene transfer.
Tags: Comparative Study; Support, U.S. Gov't, P.H.S.
Descriptors: Genes, Bacterial; *Propanediol Dehydratase--Genetics--GE; *Propylene Glycol--Metabolism--ME; Salmonella typhimurium--Genetics--GE ; Cobamides; Gene Transfer; Genetic Complementation Test; Genomic ibrary; Hydro-Lyases--Genetics--GE; Molecular Sequence Data; Open Reading Frames; Operon; Propanediol Dehydratase--Biosynthesis--BI; Sequence Analysis, DNA; Sequence Homology; Species Specificity
Molecular Sequence Databank No.: GENBANK/AF026270
CAS Registry No.: 0 (Cobamides); 13870-90-1 (cobamamide); 57-55-6 (Propylene Glycol)
Enzyme No.: EC 4.2.1. (Hydro-Lyases); EC 4.2.1.28 (Propanediol Dehydratase); EC 4.2.1.30 glycerol dehydratase)

9/6/1 (Item 1 from file: 155) 09434432 98096792
Construction and characterization of a 1,3-propanediol operon.

9/6/2 (Item 2 from file: 155) 09370365 98088953
A base-off analogue of coenzyme-B12 with a modified nucleotide loop--1H-NMR structure analysis and kinetic studies with (R)-methylmalonyl-CoA mutase, glycerol dehydratase, and diol dehydratase.

9/6/3 (Item 3 from file: 155) 09298196 98012959
Propanediol utilization genes (pdu) of Salmonella typhimurium: three genes for the propanediol dehydratase.

9/6/4 (Item 4 from file: 155) 09269790 97296406
Kinetic investigations with inhibitors that mimic the posthomolysis intermediate in the reactions of coenzyme-B12-dependent glycerol dehydratase and diol dehydratase.

9/6/5 (Item 5 from file: 155) 08744733 96394290
Cloning, sequencing, and hi gh level expression of the genes encodingadenosylcobalamin-dependent glycerol dehydrase of Klebsiella pneumoniae.

9/6/6 (Item 6 from file: 155) 08744699 96422012
Cloning, sequencing, and overexpression of the genes encoding coenzyme B12-dependent glycerol dehydratase of Citrobacter freundii.

9/6/7 (Item 7 from file: 155) 07468997 93122543
Growth temperature-dependent activity of glycerol dehydratase in Escherichia coli expressing the Citrobacter freundii dha regulon.

9/6/8 (Item 8 from file: 155) 07439899 92121087
Sugar-glycerol cofermentations in lactobacilli: the fate of lactate.

9/6/9 (Item 9 from file: 155) 06340102 90155202
Anaerobic growth of Escheri chia coli on glycerol by importing genes ofthe dha regulon from Klebsiella pneumoniae.

9/6/10 (Item 10 from file: 155) 04613198 83032742
The mechanism of in sutu reactivation of glycerol-inactivated coenzyme B12-dependent enzymes, glycerol dehydratase and diol dehydratase.

9/6/11 (Item 11 from file: 155) 04605831 82183110
[Substrate specificity of adenosylcobalamin-dependent glycerol dehydratase. Interaction with enantiomers of 1,2-propanediol] Substratnaia spetsifichnost' adenozilkobalaminzavisimoi glitseroldegidrat azy. Vzaimodeistvie s enantiomerami 1,2-propandiola.

9/6/12 (Item 12 from file: 155) 04602186 82119943
Glycerol fermentation in Klebsiella pneumoniae: functions of the coenzyme B12-dependent glycerol and diol dehydratases.

9/6/13 (Item 13 from file: 155) 04581469 81006730
In situ reactivation of glycerol-I nactivated coenzyme B12-dependent enzymes, glyceroldehydratase and diol dehydratase.

9/6/14 (Item 14 from file: 155) 04576639 80159893
Distribution of coenzyme B12-dependent diol dehydratase and glycerol dehydratase in selected genera of Enterobacteriaceae and Propionibacteriaceae.

9/6/15 (Item 15 from file: 155) 03809898 83049313
[Coenzyme properties of adenosylcobalamin analogs with modifications in the purine nucleus of the alpha-ligand] Kofermentnye svoistva analogov adenozilkobalamina s izmenennym purinovym iadrom al'fa-liganda.

9/7/13 (Item 13 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 1998 Dialog Corporation. Alrts. reserv.
04581469 81006730
In situ reactivation of glycerol-inactivated coenzyme B12-dependent enzymes, glyceroldehydratase and diol dehydratase.
Honda S; Toraya T; Fukui S
J Bacteriol (UNITED STATES) Sep 1980, 143 (3) p1458-65, ISSN 0021-9193 Journal Code: HH3 Languages: ENGLISH Document type: JOURNAL ARTICLE
The catalytic properties of coenzyme B12-dependent glycerol dehydratase and diol dehydratase were studied in situ with Klebsiella pneumoniae cells permeabilized by toluene treatment, since the in situ enzymes approximate the in vivo conditions of the enzyme[redacted]closely than enzymes in cell-free extracts or cell homogenates. Both dehydratases in situ underwent rapid[redacted]al' inactivation by glycerol during catalysis, as they do in vitro. The inactivated dehydratases in situ, however, were rapidly and continually reactivated by adenosine 5'-triphosphate (ATP) and Mn2+ in the presence of free adenosylcobalamin, although in cell-free extracts or in cell homogenates they could not be reactivated at all under the same reaction conditions. ATP was partially replaced bycytidine 5'-triphosphate or guanosine 5'-triphosphate but not by the beta, gamma-methylene analog of ATP in the in situ reactivation. Mn2+ was fully replaced by Mg2+ but only partially by Co2+Hydroxocoblamin could not replace adenosylcobalamin in reactivation mixtures. The ability to reactivate the glycerol-inactivateddehydratases in situ was only seen in cells grown anaerobically in glycerol-containing media. This suggests that some factor(s) required for in situ reactivation is subject to induction by glycerol. Of the two possible mechanisms of in situ reactivation, i.e., the regeneration of adenosylcobalamin by Co-adenosylation of the bound inactivated coenzyme moiety (B12-adenosylation mechanism) and the displacement of the bound inactivated coenzyme moiety by free adenosyl-cobalamin (B12-exchange mechanism), the former seems very unlikely from the experimental results.

9/7/14 (Item 14 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 1998 Dialog Corporation. Alrts. reserv.
04576639 80159893
Distribution of coenzyme B12-dependent diol dehydratase and glycerol dehydratase in selected genera of Enterobacteriaceae and Propionibacteriaceae.
Toraya T; Kuno S; Fukui S
J Bacteriol (UNITED STATES) Mar 1980, 141 (3) p1439-42, ISSN 0021-9193 Journal Code: HH3 Languages: ENGLISH Document type: JOURNAL ARTICLE
The presence of diol dehydratase and glycerol dehydratase was shown in several bacteria of Enterobacteriaceae grown anaerobically on 1,2-propanediol and on glycerol, respectively.Diol dehydratases ofEnterobacteriaceae were immunologically similar, but distinct from that of Propionibacterium freudenreichii.
Tags: Comparative Study
Descriptors: *Enterobacteriaceae--Enzymology--EN; *Hydro-Lyases--Metabolism--ME; *Propanediol Dehydratase--Metabolism--ME; *Propionibacterium --Enzymology--EN; Citrobacter--Enzymology--EN; Cobamides--Pharmacology--PD; Enterobacter--Enzymology--EN; Erwinia--Enzymology--EN; Escherichia coli --Enzymology--EN; Glycerol--Metabolism--ME; Klebsiella pneumoniae --Enzymology--EN; Propylene Glycols--Metabolism--ME; Proteus—Enzymology –EN
CAS Registry No.: 0 (Cobamides); 0 (Propylene Glycols); 56-81-5 (Glycerol)
Enzyme No.: EC 4.2.1. (Hydro-Lyases); EC 4.2.1.28 (Propanediol Dehydratase); EC 4.2.1.30 (glycerol dehydratase)

16jun98 08:59:56 User208600 Session D1155.9

File 34:SciSearch(R) Cited Ref Sci 1990-1998/Jun W1 (c) 1998 Inst for Sci Info

Set Items Description
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Ref Items Index-term
E1 25 CR=TORAYA T, 1979, V139, P39, J BACTERIOL
E2 39 CR=TORAYA T, 1979, V18, P417, BIOCHEMISTRY-US
E3 0 *CR=TORAYA T, 1980
E4 15 CR=TORAYA T, 1980, V141, P1439, J BACTERIOL
E5 4 CR=TORAYA T, 1980, V191, P139, ADV CHEM SER
E6 6 CR=TORAYA T, 1980, V203, P174, ARCH BIOCHEM BIOPH
E7 5 CR=TORAYA T, 1980, V255, P3520, J BIOL CHEM
E8 1 CR=TORAYA T, 1980, V67, P57, METHOD ENZYMOL
E9 2 CR=TORAYA T, 1981, V2, P233, B12
E10 1 CR=TORAYA T, 1982, P233, B12
E11 1 CR=TORAYA T, 1982, P233, B12 BIOCH MED
E12 1 CR=TORAYA T, 1982, P233, DIOL DEHYDRASE

S1 15 CR="TORAYA T, 1980, V141, P1439, J BACTERIOL"

1/6/1 06370723 Genuine Article#: YM852 Number of References: 30
Title: Characterization, sequencing, and expression of the genes encoding a reactivating factor for glycerol-inactivated adenosylcobalamin-dependent diol dehydratase (ABSTRACT AVAILABLE)

1/6/2 06261181 Genuine Article#: YE951 Number of References: 37
Title: Heterologous expression, purification, and properties of diol dehydratase, an adenosylcobalamin-dependent enzyme of Klebsiella oxytoca (ABSTRACT AVAILABLE)

1/6/3 06230345 Genuine Article#: YD136 Number of References: 27
Title: A protein factor is essential for in situ reactivation of glycerol-inactivated adenosylcobalamin-dependent dio dehydratase (ABSTRACT AVAILABLE)

1/6/4 05248094 Genuine Article#: VK789 Number of References: 29
Title: CLONING, SEQUENCING, AND OVEREXPRESSION OF THE GENES ENCODING COENZYME B-12-DEPENDENT GLYCEROL DEHYDRATASE OF CITROBACTER-FREUNDII (Abstract Available)

1/6/5 05187862 Genuine Article#: VG672 Number of References: 27
Title: CLONING, SEQUENCING, AND HIGH-LEVEL EXPRESSION OF THE GENES ENCODING ADENOSYLCOBALAMIN-DEPENDENT GLYCEROL DEHYDRASE OF KLEBSIELLA-PNEUMONIAE(Abstract Available)

1/6/6 05061234 Genuine Article#: TM924 Number of References: 81
Title: EVOLUTION OF COENZYME B(12) SYNTHESIS AMONG ENTERIC BACTERIA - EVIDENCE FOR LOSS AND REACQUISITION OF A MULTIGENE COMPLEX (Abstract Available)

1/6/7 04895031 Genuine Article#: UP923 Number of References: 21
Title: EVIDENCE FOR ENANTIOMORPHIC-ENANTIOTOPIC GROUP DISCRIMINATION IN DIOL DEHYDRATASE-CATALYZED DEHYDRATION OF MESO-2,3-BUTANEDIOL (Abstract Available)

1/6/8 04071489 Genuine Article#: RC258 Number of References: 32
Title: TAXONOMIC DIVERSITY OF ANAEROBIC GLYCEROL DISSIMILATION IN THE ENTEROBACTERIACEAE (Abstract Available)

1/6/9 04048801 Genuine Article#: QK574 Number of References: 24
Title: MICROBIAL CONVERSION OF GLYCEROL TO 1,3-PROPANEDIO[redacted]tract Available)

1/6/10 03152678 Genuine Article#: NF832 Number of References: 25
Title: PHENOTYPIC DIVERSITY OF ANAEROBIC GLYCEROL DISSIMILATION SHOWN BY 7 ENTEROBACTERIAL SPECIES (Abstract Available)

1/6/11 03089320 Genuine Article#: BZ91T Number of References: 110
Title: DIOL DEHYDRASE AND GLYCEROL DEHYDRASE, COENZYME B-12-DEPENDENT ISOZYMES

1/6/12 02758486 Genuine Article#: MB189 Number of References: 29
Title: PARTICIPATION OF ASPARTIC-ACID AND PYRROLOQUINOLINE QUINONE IN VITAMIN-B12 PRODUCTION IN KLEBSIELLA-PNEUMONIAE IFO-13541 (Abstract Available)

1/6/13 02183013 Genuine Article#: KH480 Number of References: 21
Title: ASSESSMENT OF MACROPOROUS POLYSTYRENE-BASED POLYMERS FOR THE IMMOBILIZATION OF CITROBACTER-FREUNDII (Abstract Available)

1/6/14 00824062 Genuine Article#: EZ518 Number of References: 20
Title: THE FERMENTATION OF GLYCEROL BY CLOSTRIDIUM-BUTYRICUM LMG-1212T2 AND LMG-1213T1 AND C-PASTEURIANUM LMG-3285 (Abstract Available)

1/6/15 00251953 Genuine Article#: DB131 Number of References: 13
Title: FERMENTATION OF GLYCEROL TO 1,3-PROPANEDIOL BY KLEBSIELLA AND CITROBACTER STRAINS

1/7/5 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci (c) 1998 Inst for Sci Info. All rts. reserv.
05187862 Genuine Article#: VG672 Number of References: 27
Title: CLONING, SEQUENCING, AND HIGH-LEVEL EXPRESSION OF THE GENES ENCODING ADENOSYLCOBALAMIN-DEPENDENT GLYCEROL DEHYDRASE OF KLEBSIELLA-PNEUMONIAE
Author(s): TOBIMATSU T; AZUMA M; MATSUBARA H; TAKATORI H; NIIDA T; NISHIMOTO K; SATOH H; HAYASHI R; TORAYA T
Corporate Source: OKAYAMA UNIV,FAC ENGN,DEPT BIOSCI & BIOTECHNOL,TSUSHIMA NAKA/OKAYAMA 700//JAPAN/; OKAYAMA UNIV,FAC ENGN,DEPT BIOSCI & BIOTECHNOL/OKAYAMA 700//JAPAN/
Journal: JOURNAL OF BIOLOGICAL CHEMISTRY, 1996, V271, N37 (SEP 13), P 22352-22357 ISSN: 0021-9258 Language: ENGLISH Document Type: ARTICLE
Abstract: The gld genes encoding adenosylcobalamin-dependent glycerol dehydrase of Klebsiella pneumoniae were cloned by cross-hybridization with a DNA fragment of Klebsiella oxytoca diol dehydrase genes. Since the Escherichia coli clones isolated did not show appreciable enzyme activity, plasmids for high level expression of cloned genes were constructed. The enzyme expressed in E. coli was indistinguishable from the wild-type glycerol dehydrase of K. pneumoniae by the criteria of polyacrylamide gel electrophoretic, immunochemical, and catalytic properties, It was also shown that the recombinant functional enzyme consists of M(r) 61,000, 22,000, and 16,000 subunits. Sequence analysis of the genes revealed four open reading frames separated by 2-12 bases. The sequential three open reading frames from the first to the third (gldA, gldB, and gldC genes) encoded polypeptides of 555, 194, and 141 amino acid residues with predicted molecular weights of 60,659(alpha), 21,355(beta), and 16,104(gamma), respectively. High level expression of these three genes in E. coli produced more than 14-fold higher level of fully active apoenzyme than that in a pneumoniae. It was thus concluded that these are the genes encoding the subunits of glycerol dehydrase. The deduced amino acid sequences of the three subunits were 71, 58, and 54% identical with those of the alpha, beta, and gamma subunits of diol dehydrase, respectively, but failed to show any apparent homology with other proteins.

1/7/8 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci (c) 1998 Inst for Sci Info. All rts. reserv.
04071489 Genuine Article#: RC258 Number of References: 32
Title: TAXONOMIC DIVERSITY OF ANAEROBIC GLYCEROL DISSIMILATION IN THE ENTEROBACTERIACEAE
Author(s): BOUVET OMM; LENORMAND P; AGERON E; GRIMONT PAD
Corporate Source: INST PASTEUR,INSERM,U389,UNITE ENTEROBACTERIES/F-75724 PARIS 15//FRANCE/
Journal: RESEARCH IN MICROBIOLOGY, 1995, V146, N4 (MAY), P279-290 ISSN: 0923-2508 Language: ENGLISH Document Type: ARTICLE
Abstract: A total of 1,123 strains representing 128 taxa in the Enterobacteriaceae (named species or subspecies and genomic species) were screened for the presence of glycerol dehydrogenases and 1,3-propanediol dehydrogenase. Only eight taxa, Citrobacter freundii sensu stricto, C. youngae, C. braakii, C. werkmanii, Citrobacter genomospecies 10 and 11, Enterobacter gergoviae and Klebsiella pneumoniae subsp. pneumoniae could grow fermentatively on glycerol and possessed both glycerol dehydrogenase type I (induced by glycerol and dihydroxyacetone) and 1,3-propanediol dehydrogenase which are typical enzymes of the anaerobic glycerol dissimilation pathway. Six other species. C. koseri, E. aerogenes, E. intermedium, K. oxytoca, K. planticola and K. terrigena could not grow fermentatively on glycerol and possessed a glycerol dehydrogenase type I but no 1,3-propanediol dehydrogenase. Other glycerol dehydrogenases types were found: type II (induced by glycerol and hydroxyacetone), type III (induced by glycerol only) and type IV (induced by hydroxyacetone only). They were widely distributed among the Enterobacteriaceae. Classification and identification may take advantage of tests exploring the dissimilation of glycerol.

1/7/9 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci (c) 1998 Inst for Sci Info. All rts. reserv.

04048801 Genuine Article#: QK574 Number of References: 24
Title: MICROBIAL CONVERSION OF GLYCEROL TO 1,3-PROPANEDIOL
Author(s): DECKWER WD
Corporate Source: GESELL BIOTECHNOL FORSCH MBH/D-38124 BRAUNSCHWEIG//GERMANY/
Journal: FEMS MICROBIOLOGY REVIEWS, 1995, V16, N2-3 (FEB), P143-149 ISSN: 0168-6445 Language: ENGLISH Document Type: ARTICLE
Abstract: Glycerol produced by cleavage of natural fats can microbially be converted to 1,3-propanediol (PD) by Citrobacter, Klebsiella and Clostridia strains. The fermentation by C. butyricum, product recovery and purification has been investigated in detail up to the 2 m(3) scale. Estimation of product costs for a 10,000 t/a plant indicates that the microbial process is obviously more attractive than the chemical route. Presently, 1,3-propanediol has only a low market volume; however, its use for special polycondensates, in particular polyesters, could reduce glycerol surpluses and make plastics a easily biodegradable part of natural cycles.

1/7/10 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci (c) 1998 Inst for Sci Info. All rts. reserv.
03152678 Genuine Article#: NF832 Number of References: 25
Title: PHENOTYPIC DIVERSITY OF ANAEROBIC GLYCEROL DISSIMILATION SHOWN BY 7 ENTEROBACTERIAL SPECIES
Author(s): BOUVET OMM; LENORMAND P; CARLIER JP; GRIMONT PAD
Corporate Source: INST PASTEUR,[redacted]M,U389,UNITE ENTEROBACTERIES/F-75724 PARIS 15//FRANCE/; INST PASTEUR,UNI[redacted]EROBIES/F-75724 PARIS 15//FRANCE/
Journal: RESEARCH IN MICROBIOLOGY, 1994, V145, N2 (FEB), P129-139 ISSN: 0923-2508 Language: ENGLISH Document Type: ARTICLE
Abstract: The anaerobic glycerol pathway was studied in seven enterobacterial species selected as representative of different behaviours in terms of anaerobic glycerol dissimilation. The presence of oxidative and reductive pathways of the dha regulon in Klebsiella pneumoniae enabled the cells to grow fermentatively on glycerol. The first two enzymes of the dha regulon (glycerol dehydrogenase type I and dihydroxyacetone kinase) represent the oxidative branch, while the latter two (glycerol dehydratase and 1,3-propanediol dehydrogenase) represent the reductive branch of glycerol fermentation. The slower utilization of glycerol by K. oxytoca was attributed to low production of 1,3-propanediol. K. oxytoca lacked glycerol dehydratase and demonstrated low 1,3-propanediol dehydrogenase activity. K. planticola and K. ozaenae differed from K. pneumoniae and K. oxytoca in lacking
the ability to grow on glycerol. K. planticola lacked both enzymes of the reductive branch of glycerol fermentation, and K. ozaenae possessed glycerol dehydrogenase only. K. rhinoscleromatis and Hafnia alvei, like Escherichia coli, did not possess a dha regulon. The glycerol dehydrogenase type II of H. alvei was distinct from that of E. coli. The phenotypic diversity of anaerobic glycerol dissimilation may have taxonomic applications.

1/7/11 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci (c) 1998 Inst for Sci Info. All rts. reserv.
03089320 Genuine Article#: BZ91T Number of References: 110
Title: DIOL DEHYDRASE AND GLYCEROL DEHYDRASE, COENZYME B-12-DEPENDENT ISOZYMES
Author(s): TORAYA T
Corporate Source: OKAYAMA UNIV,FAC ENGN,DEPT BIOTECHNOL,3-1-1 TSUSHIMA NAKA/OKAYAMA 700//JAPAN/
Journal: METAL IONS IN BIOLOGICAL SYSTEMS, 1994, V30, P217-254 ISSN: 0161-5149 Language: ENGLISH Document Type: REVIEW

(FILE 'USPAT' ENTERED AT 14:39:16 ON 15 JUN 1998)
L1 13 S (DIOL OR GLYCEROL)(2N)(DEHYDRASE OR DEHYDRATASE)
L2 3 S DHAT
L3 31 S DHAB?

L2
1. 5,686,276, Nov. 11, 1997, Bioconversion of a fermentable carbon source to 1,3-propanediol by a single microorganism; Lisa Anne Laffend, et al., 435/158, 252.31, 252.33 [IMAGE AVAILABLE]

2. 5,086,386, Feb. 4, 1992, Method and apparatus for benchmarking the working set of window-based computer systems; Nayeem Islam, 707/202; 364/264, 264.3, 280, 280.6, 281.3, 282, 285, 286, 286.3, 927.2, 927.4, 927.63, 927.81, 928, 929.12, 931, 931.5, 932, 932.1, 932.4, 932.5, 946.2, 950, 950.3, 950.4, 957, 957.1, 957.8, 962, 962.4, 975.4, DIG.1, DIG.2; 395/182.14 [IMAGE AVAILABLE]

3. 3,948,331, Apr. 6, 1976, Track assembly for snowmobiles; Richard E. Esch, 305/132; 180/193 [IMAGE AVAILABLE]

US PAT NO: 5,686,276 [IMAGE AVAILABLE] L2: 1 of 3
SUMMARY: BSUM(14)
In Klebsiella pneumoniae and Citrobacter freundii, the genes encoding the functionally linked activities of glycerol dehydratase (dhaB), 1,3-propanediol oxidoreductase (**dhaT**), glycerol dehydrogenase (dhaD), and dihydroxyacetone kinase (dhaK) are encompassed by the dha regulon. The dha regulons from Citrobacter and Klebsiella. . .

DETDESC: DETD(60) The . . . achieved by placing the necessary structural genes under the control of alternate promotors as has been demonstrated for 1,3-propanediol oxidoreductase (**dhaT**) from C. freundii and diol dehydratase from K. oxytoca ATCC 8724 (Daniel et al., J. Bacteriol. 177, 2151 (1995) and. . .

L3
1. 5,753,723, May 19, 1998, Denture fixative with an adhesion promoter; Tiang Shing Chang, et al., 523/120; 106/35; 514/574; 524/42, 239, 321, 549, 559 [IMAGE AVAILABLE]

2. 5,750,591, May 12, 1998, Denture adhesive containing partial irconium, calcium, sodium gantrez salt; Hal C. Clarke, et al., 523/120; 433/228.1; 523/118; 524/45, 559; 525/370 [IMAGE AVAILABLE]

3. 5,723,106, Mar. 3, 1998, Reduced alcohol mouthwash antiseptic and antiseptic preparation; R. Michael Buch, et al., 424/49, 58 [IMAGE AVAILABLE]

4. 5,699,269, Dec. 16, 1997, Method for predicting chemical or physical properties of crude oils; Terrence Rodney Ashe, et al., 702/30; 436/29, 60 [IMAGE AVAILABLE]

5. 5,696,181, Dec. 9, 1997, Denture fixative; Tiang-Shing Chang, et al., 523/118; 430/180; 523/120; 524/28, 45, 55, 377, 439, 440 [IMAGE AVAILABLE]

6. 5,686,276, Nov. 11, 1997, Bioconversion of a fermentable carbon source to 1,3-propanediol by a single microorganism; Lisa Anne Laffend, et al., 435/158, 252.31, 252.33 [IMAGE AVAILABLE]

7. 5,650,479, Jul. 22, 1997, Interfacially polymerized polyester films; Paul G.Glugla, et al., 528/194; 95/43, 54; 210/500.21, 500.26; 528/176, 193 [IMAGE AVAILABLE]

8. 5,569,581, Oct. 29, 1996, Alteration and prediction of male fertility using seminal plasma and its components; Gary Killian, et al., 435/4; 424/520; 435/806 [IMAGE AVAILABLE]

9. 5,561,177, Oct. 1, 1996, Hydrocarbon free denture adhesive; Nilofar Khaledi, et al., 524/35; 433/180; 523/120; 524/43, 45, 313, 492 [IMAGE AVAILABLE]

10. 5,543,443, Aug. 6, 1996, Denture stabilizing compositions; Jayanth Rajaiah, et al., 523/120; 522/148; 523/116, 118; 524/28, 31, 45, 55, 261, 267, 377, 522, 557; 525/100, 101, 102, 207, 328.9, 366, 474, 477, 478, 479; 526/279; 528/15, 26, 31, 32, 33, 374 [IMAGE AVAILABLE]

11. 5,461,155, Oct. 24, 1995, Organic soluble metal-azo and metal-azomethine dyes; Terrance P. Smith, et al., 546/12 [IMAGE AVAILABLE]

12. 5,424,058, Jun. 13, 1995, Denture stabilizing compositions comprising a mixed partial salt of a lower alkyl vinyl ether-maleic acid copolymer; Jayanth Rajaiah, et al., 424/49; 106/35; 523/120; 525/328.9, 366, 370; 526/240 [IMAGE AVAILABLE]

13. 5,405,836, Apr. 11, 1995, Pet foods with water-soluble zinc compound coating for controlling malodorous breath; Thomas Richer, et al., 514/23; 424/49, 53, 439, 442; 426/72, 74, 805 [IMAGE AVAILABLE]

14. 5,314,998, May 24, 1994, Organic solvent-soluble metal-azo and metal-azomethine dyes; Terrance P. Smith, et al., 534/701, 710, 711, 713, 723 [IMAGE AVAILABLE]

15. 5,304,616, Apr. 19, 1994, Denture stabilizing compositions having improved hold; Jayanth Rajaiah, et al., 526/240; 523/118, 120; 525/327.8 [IMAGE AVAILABLE]

16. 5,242,834, Sep. 7, 1993, Analy[redacted]uminum in amino acids by high performance liquid chromatography; Durga V. Subramanian, 436/73; 73/[redacted]10/656; 436/74, 161, 174, 175, 182 [IMAGE AVAILABLE]

17. 5,225,514, Jul. 6, 1993, Azo containing polyurethanes for drug delivery to the large intestines; Yoshiharu Kimura, et al., 528/76; 514/772.3; 528/85 [IMAGE AVAILABLE]

18. 5,165,914, Nov. 24, 1992, Oral compositions containing zinc lactate complexes; Richard S. Vlock, 424/52, 49, 641, 642, 643, 673, 676 [IMAGE AVAILABLE]

19. 5,094,845, Mar. 10, 1992, Oral compositions containing zinc gluconate complexes; Richard S. Vlock, 424/52, 49, 53, 55, 613, 641, 643, 673 [IMAGE AVAILABLE]

20. 5,073,604, Dec. 17, 1991, Denture stabilizing compositions; Kenneth T. Holeva, et al., 525/327.8; 523/120; 525/327.9, 328.9, 366, 370; 526/240 [IMAGE AVAILABLE]

21. 5,050,692, Sep. 24, 1991, Method for directional drilling of subterranean wells; Herbert W. Beimgraben, 175/61, 74, 76, 256 [IMAGE AVAILABLE]

22. 4,980,391, Dec. 25, 1990, Denture adhesives and methods for preparing same; Lori D. Kumar, et al., 524/45; 106/35; 523/120; 524/492 [IMAGE AVAILABLE]

23. 4,948,580, Aug. 14, 1990, Muco-bioadhesive composition; Ivan Browning, 514/772.5; 424/434, 435, 443, 447, 448, 484; 514/944, 969 [IMAGE AVAILABLE]

24. 4,937,066, Jun. 26, 1990, Zinc containing oral compositions; Richard S. Vlock, 424/52, 49, 53, 55, 613, 614, 641, 643, 673 [IMAGE AVAILABLE]

25. 4,817,740, Apr. 4, 1989, Apparatus for directional drilling of subterranean wells; Herbert W. Beimgraben, 175/74, 76, 256 [IMAGE AVAILABLE]

26 4,747,415, May 31, 1988, Method and device for measuring penile rigidity; Pierre Lavoisier, 600/587, 507 [IMAGE AVAILABLE]

27. 4,717,260, Jan. 5, 1988, Time differential correcting analog timepiece of twenty-four hour system; Shigeru Tsuji, 368/21; 968/167, DIG.1 [IMAGE AVAILABLE]

28. 4,560,013, Dec. 24, 1985, Apparatus for directional drilling and the like of subterranean wells; Herbert W. Beimgraben, 175/73, 325.2 [IMAGE AVAILABLE]

29. 4,404,088, Sep. 13, 1983, Three-stage hydrocracking process; Robert W. Bachtel, et al., 208/59, 111 [IMAGE AVAILABLE]

30. 3,926,577, Dec. 16, 1975, Corrosion inhibitor for vanadium-containing fuels; Michael J. Zetlmeisl, et al., 44/320, 354; 252/387 [IMAGE AVAILABLE]

31. 3,691,408, Sep. 12, 1972, METHOD AND MEANS FOR THERMOELECTRIC GENERATION OF ELECTRICAL ENERGY; John B. Rosso, 310/306; 62/5; 136/209, 211 [IMAGE AVAILABLE]

US PAT NO: 5,686,276 [IMAGE AVAILABLE] L3: 6 of 31
SUMMARY: BSUM(14) In Klebsiella pneumoniae and Citrobacter freundii, the genes encoding the functionally linked activities of glycerol dehydratase (**dhaB**), 1,3-propanediol oxidoreductase (dhaT), glycerol dehydrogenase (dhaD), and dihydroxyacetone kinase (dhaK) are encompassed by the dha regulon. The dha regulons from. . .